THE MADURAI MEDICAL COLLEGE MAGAZINE

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The Editorial

ANOTHER momentous year has rolled by the Madurai Medical College and we have much pleasure in presenting the second volume of our College Magazine. The College opened its doors for the first batch of 50 students on the 22nd. July 1954. The second year has been remarkable in many respects. The number of students admitted was raised to 65 and the first batch of 50 students were presented for the I.M.B.B.S. Examination in December 1955. With a 78% success in Anatomy and 50% in Physiology, our College stood first in the University Examination among the State Medical Colleges, thereby amply justifying our hopes and aspirations.

Dr. (Smt.) Sarah J. Souri, M.B.B.S., D.G.O., Ph. D. (Glasgow) our first Principal relinquished office on 30—7—1955 on her transfer to Madras and our present Principal, Dr. M. D. Ananthachari, M. D., assumed charge on 31—7—1955. With his long experience in teaching as well as administration as Principal of the Andhra Medical College, we are confident our infant institution would continue to make rapid all round progress and attain full status under his guidance and direction.

The first batch of students entered on their clinical studies from January '56 at the Erskine Hospital. Simultaneously, the departments of Medicine, Surgery, Bacteriology, Pathology, Pharmacology as well as Social and Preventive Medicine which were functioning with skeleton staff till then for organising and equipping the departments, became full-fledged teaching units.

The massive new granite buildings that are being built at a cost of more than 40 lakhs of Rupees to provide permanent accommodation for the various departments, are making rapid progress in spite of many handicaps and some of the departments are expected to move in before the next academic year.

With the second largest population in the world—second only to China—living at subsistance level and a low level at that, with its problems of malnutrition, low resistance to diseases and low economic conditions producing its vicious circle, a life expectancy of only about 30 years and an infant mortality rate that every year takes away 10 lakhs of infants before they are one year old, the medical profession in India has to face mighty problems. We are confident that the Madurai Medical College will contribute its full share to meet this challenge in the years to come.

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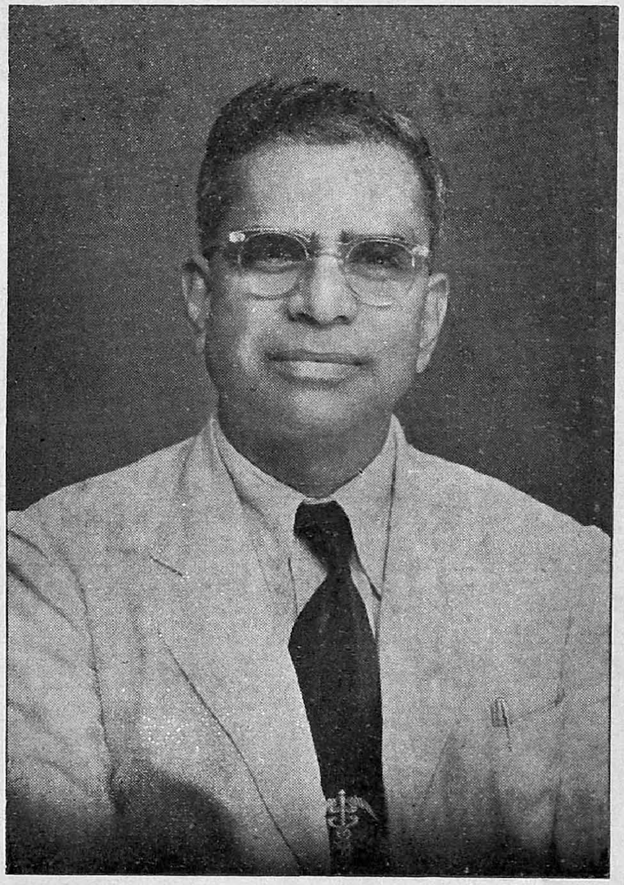

Dr. M. D. ANANTHACHARI, M.D.
Our Principal and Professor of Medicine

15 NOV
DARK

The Scientist

by

DR. M. D. ANANTHACHARI, M. D.
Principal and Professor of Medicine, Madurai Medical College.

IN THE process of evolution man acquired dominance over his surroundings. This he did by developing to the full the faculties of his brain. Blessed with a mass of nerve matter comparatively larger than that of any other creature, he had the facility to gain mastery over the rest of creation.

With the faculty for recall memory, the utilisation of a past experience to meet and solve a present situation and the projection into the future of an activity of body and mind in contemplation of a remote benefit, became easy for him. With these acquisitions, he was supreme over the fowl and the brute. He also became one better than his brother. By the exercise of his intelligence, (the sum total of all the faculties of the brain), he functioned to win in a race for the survival of the fittest. Competitive exercise of his intellect brought for him the things he wished for, as well as surmount adversity. He exercised his gifts of intelligence and directed his energies towards achieving, first, survival and then, pandering to his senses, with comfort and pleasure.

To exist is to be selfish. One cannot survive a moment in this world without adopting this basic motive. Survival invaribly is at the expense of something else. Life must feed upon life to live. The urge to live is the strongest of all urges in all living things. Man still continues to compete in this eternal race for supremacy in selfishness. The difference between one man and another is the difference in the degree of his selfishness.

With a strong intelligence and a weak body, realization by the weak of the benefits of corporate living, brought into being herding of individuals ; society and community were organised. The urges of individual selfishness were subordinate to the benefits of the many. Submission to the supremacy of the society, by the individual in many aspects was the sacrifice man made during evolution ; community, class, nation, race etc., were the outcome of this change in the human being, from a selfish, self-seeking, self-aggrandizing animal into a less selfish, tolerant, helpful common man. The caveman, Tarzan, turned out as a national. The manner of living of human beings at the present day is the result of this process of subjugation of the individual to the community.

With life problems of a personal and animalistic nature settled for him by group living, man's intelligence had freedom to direct its energies in paths other than those relative to mere living. Thought pursuit was towards the search for and realization of the phenomena, evident around him

in his environment. His intellectual activities were centered round two broad loci. One was related to all the perceptions by his sense faculties, the material ; the other had no external objective and relationship ; it was purely fanciful and immaterial and hence, meta-physical. Exercising in the latter locus, he conceived ideas or philosophies. He experienced intangible things. The outcome of his intellectual exercise in this direction brought into being such concepts as God, religion, truth, morals, magic ; mathematics, eternity, oblivion, time, space, infinity and a host of others.

In matter, of materialistic nature, by incursions of his intellect, man gained equally. He saw, felt, heard, smelt and tasted. His mind processes reverted to realization to the full, all that was beside him and reached by him through his senses. He wanted answers to the why and the wherefore, the whence and the whither, the when and the how. He wanted to know what controlled the existence and mutation of all that surrounded him. This enquiry led him down a narrower path in which he first acquired factual knowledge regarding the materials around him (the physical science) ; the problems of the living as contrasted with matter that was dead, led him to biology (the science and study of the living), and thus in other directions. Knowledge acquired over long periods of time and through generations of similarly minded people gave him the ologies. He became a Scientist. He concerned himself with acquisition of factual knowledge, precise and accurate; the general laws which control physical matter ; the minute structure and function of these ; later, he attempted reproduce the things he learned about. In short, he pursued a path in life for a purpose and with a constancy of attention. Now, to-day, his efforts have made him a master, not alone of living things but of the secrets of life which threaten his very existence, paradoxically though it may seem.

The true scientist is like the "Happy Warrior" in many respects. The scientist is not any man trying to know the laws of nature. A true scientist is like the novitiate in a seminary. His objectives are to know the truths of nature. His material is the world outside him. His methods are the ritual evolved through an age of trial and error. His codes are the highest and extremely strict. His life is a dedication. His purpose, the good of the many. He does not want to walk alone. He invites company, criticism, experience. The fruit of his labour, be it little or much, is no secret. He submits himself to correction when proved to be in the wrong. Is yet humble. He will not prostitute his skill, power or results for purposes which are destructive to life. It is this type of happy warrior that truly exemplifies the "Discipline of Science."

The methods he adopts are the most scrupulous. He experiments, observes and infers. He sees things and notes his observations as he finds them. He repeats his experiments and observations so that chances of error may not creep in. Next, he carries out his experiments under control by himself. This helps him to adjust the variables and the constancies which operate in a particular problem. He gains factual information. Assembling the observed facts he draws his inferences from the facts. Here he uses the philosophical methods. He formulates and expresses the facts in mathematical equations. For, mathematics is a philosophy which applies exctitude to conceptions, and there is no end to the scope of its application to logical thinking.

Philosophy helps the scientist to postulate, theorize, and fancy. No doubt this methodology leads to error on occasions ; but the philosophy of the scientist is not for its own sake. Based on philosophical concepts he proceeds to arrive at certain truths, which however, are to be verified by the application of tests. There are many instances where philosophical formularies have been enunciated as basis for practical procedures, sustained or thrown out by results. The theory of motion of the earth around the sun, the theories of relativity, of light, of structure of matter, of circus movement in the heart muscle, the solar and lunar peregrenations resulting in eclipse etc., these have been philosophical thinking later confirmed by the accumulation of facts gained by the scientist by his methods.

Do his efforts stop after the gaining of his objective ? No. The true scientist does not stop there. He broadcasts his findings for verification by others similarly minded; for use of this knowledge for furtherance in other directions by others in the quest of science. No scientist's endeavour or achievement will be worth a moment's consideration if it will not subject itself to intense and every known method of verification. Science has no propriety rights or secrets. Often the scientist himself for verification reconstructs the whole from the parts to see if he can synthesize. If he cannot he has to learn yet more something.

The disciplined scientist's codes of honour are of the highest rectitude. No novitiate in the strictest religious order can claim superiority. The fact that nobody looks on during his work and there is none to please or satisfy, makes him adhere scrupulously to verity. He is not tempted to compromise with truth. There is none such as partial truth,

Humanism is the soul of the disciplined scientist. Without it, he is unthinkable as a human being first and a scientist next. If he is bereft of the purpose of living, if his achievements have eschewed human considerations in their scope or application, if he has become a machine and remained not a man, if he has acquired its accuracy and precision combined with its remorselessness also, he is no longer a creature of God. If the science of atoms is for war, for destruction of man, then it is worthless and unworthy of a scientist. The scientist's efforts are not the nullification of all that creation stands for. It should for ever be the promotion of the same in an abundant measure. He creates nothing which he cannot control himself or direct, which is inimical to life in general. He should not create a Frankenstein monster or release the Genii from the bottle. There is the fable of the scientist who had the power to revitalise that which was dead from the component parts. He found a dead tiger hewn and hacked by the villagers. He applied his science and brought back to life the tiger. It destroyed him immediately. That way is not that of a disciplined scientist. Science is inhuman, impersonal and inevitable. The scientist is not.

There are no secrets about science or a scientist. His knowledge is ready for anybody's use. Often, he does not even want to gain by it monetarily. His knowledge is not be for the highest bidder. If it is fundamental and of benefit to humanity at large, it should be free. Self sacrifice for a purpose has been the aim of the scientist at the beginning of his quest. It cannot change at the hour of success. By such sacrifice he becomes a national ideal and his achievements, a national heritage. He lives and dies for the benefit of the many.

Success does not cry halt to his endeavours. He tries "from well to better" to surpass himself. Failure is only a goad. He strives to succeed, satisfied with the effort, if the achievement will not reach him. Like one in a relay race he is willing to let others carry on from where he left, the end result alone counting. If he gains in the race, he is still humble. He is not proud that he knows so much, but humble that he knows so little.

In the final analysis, the disciplined scientist is a searcher after truth ; his codes and standards are the highest, best, and in conformity with what the human race holds in the moral, spiritual and public sense ; his methods are the very elect ; his outlook, beneficient service to all ; the fruits of his labour, not his own.

The scientist is only apparently, a materialist ; his contacts are, no doubt with the physical and mundane ; his discipline is to accept truth ; he verifies with his senses the exactness of a concept. He eschews fancy and will not subscribe to that which does not hold proof, either now or hereafter. What of his religion ? Does he believe in God ?

If religion is a personal (and sometimes a private) affair, if it is a belief in certain concepts of mind, if Truth and God are one, if standards are the same in religion and science, if the objectives are benefits to humanity at large, is there a better religion than that of the scientist in his concept of his work ? Temples alone are not the places of devotion, nor ritual in set form, the manner of worship ; not even the contemplation of God always, is orthodoxy. If truth be God, if to strive after truth be science, and if the objective and purpose in life be love for thy neighbour, there is no better religion than science and no better worshipper than a scientist. The means, the methods, the objectives and the attitude of science are as good a religion as any that abstract theosophy, or ritualistic code or compulsive bigotry can demand. Isolation from the rest of God's creatures for abstract contemplation or inconsequential purposes is not for the scientist. Human values are the sole purpose of all that he does or tries to do. Human advancement and betterment is what he stands for, strives for and dies for. The scientist is the best high-priest for religion. He will support and help to found a religion, not on faith only, but on concrete and materialistic apprehension and comprehension of truth or God. The adoption of a scientific attitude of mind in all matters, even of religion, the exercise of the discipline of a scientist cannot result in atheism as is often feared, but assist in, and confirm all, that religion stands for.

In the process of gaining knowledge a method and discipline has been evolved over a period of man's evolution from the cave man to what he is to-day, a demigod. It is a process which is continuous, which will keep evolving as along as man is evolving from a sort of best of God's creation to an almost God himself, with limitless power to create and destroy, luckily, for the present, only inanimate material. But the possibility is unlimited. He is yet trying to gain the secret of creating life from elements, and even though proficient in destroying, is yet only just capable of maintaining life. If God created man in his own form, has he failed to give him a little of Himself ?

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Dr. C. K. PADMANABHA MENON,
M.B., M.S., F.R.C.S. (Eng.)
Our Professor of Surgery and Superintendent of
The Erskine Hospital

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Surgery, Surgeon and the Patient

By

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SURGERY is one of the oldest specific methods of treatment for certain diseases in man and animals. Some of the earliest surgical operations are engraved in stones over a tomb near Memphis (Egypt) (2500 B.C.). Most of these were circumcision, operations on limb, castration, wound surgery, and incision of abscesses. In India, plastic surgery in the form of reconstruction of nose is stated to have been practised, as the punishment for many crimes used to be cutting off the nose. Apart from this highly specialised art of surgery, there was no advance till late 19th century. After 43 centuries of standstill, surgery rapidly developed during the past eighty years, from a desert shrub to a giant tropical tree with plenty of branches, foliage, fragrant flowers and useful fruits giving all those who approached it, the greatest relief and comfort.

Handicaps of earlier surgery can be easily understood — Absense of knowledge regarding anaesthesia, control of infection, control of haemorrhage and the anatomy and physiology of the human being in health and disease until recent years is sufficiently well-known. It is surprising to many a modern surgeon how surgery could have been done at all by the earlier surgeons with even the small measure of success the latter had. The only parallel that can be drawn is the instance of the ancient navigators in comparision to the modern — what the earlier surgeons and the earlier navigators possessed in plenty and utilised well, — courage, curiosity, common-sense and perseverence — perhaps not so well utilised and therefore not so well developed in the modern surgeon and navigator, relying as they do, on several equipments. It is needless to say that no equipment can ever replace a properly developed human mind. Brain is possessed by all but to make it a useful equipment, there must be a properly developed human mind. Without this, man is so little different from animals.

Who all contributed to this advance and progress of surgery will foresee an interesting study of the history of man in his attempt to improve himself. It is not possible to remember or revere every one of the intellectual giants of science. Even the few names recorded may be disputed. The undisputed facts are the fruits of the endeavours of those who toiled before us.

Knowledge of Anatomy on a scientific basis developed from the 16th century with Vesalius, although Galen had contributed (in second century) a surprisingly large amount of information. In 16th century B.C., ligature of blood vessels was first begun. This may seem a small contribution to a modern medical student but it is really a very invaluable contribution to the progress of surgery. Arabs got the Greek manuscripts and tried to develop the ideas contained in them. In the middle ages the Jews and Arabs were the only

people who could be called learned. In France, Pare the French Military Surgeon (16th century) combined his commonsense, knowledge of anatomy and ideas of nursing to the best advantage of his patients. Importance of nursing was first recognised by Theodore Fieldner (in 1833), pastor of a small German town. He trained discharged female prisoners, with the help of his wife, for the nursing profession. But the wide-spread recognition of nursing as a profession and a vitally necessary help for the cure and well-being of patients was accepted only after the untiring efforts and excellent work of Florence Nightingale (English, latter half of 19th century).

Our knowledge of bacteriology in relation to surgery began with the work of Jenner, Schimurelbusch and Pasteur and progressed rapidly with Koch (1843-1910) and several others. But the practical use of this knowledge was made by Lord Lister (Joseph Lister) (1827—1912) English Surgeon. He has rightly earned the name of "Father of Modern Surgery". He persisted in adopting first antiseptic and then aseptic method of surgery, against a good deal of opposition but before his death he was recognised as a genius and modern surgeons and all patients since his time have reason to be grateful to him.

Art of anaesthesia developed after the discovery of chloroform by Sir James Young-Simpson. Since then anaesthesia has progressed a good deal. In more recent times from 1935 and 1936, German scientists contributed a lot by the manufacture of chemotherapeutic drugs (Sulphanilamide group). In 1928 Fleming discovered Penicillin the first anti-biotic, which required the stimulus of a war and the efforts of Flory (1943) and several others to bring it to a commercial scale of manufacture. Since then Streptomycin, Aureomycin, Chloromycetin—several more anti-biotics have been discovered or manufactured for the benefit of mankind and progress of surgery.

It is only during the last 20—30 years that, in the words of Lord Moyinhan, "Surgery has been made safe for patients and patients safe for surgery". This has been possible mainly due to better and increasingly better knowledge of the physiology of the living, the more accurate methods of estimation of the values of the chemical changes in health and disease and blood transfusion. Now it is possible even to know the energy changes in tissue cells. With the co-operation of all these scientists who have the interests of patients at heart, the clinical problems and surgical treatment for these have reached a reasonably sound basis at present. "The proper use of surgery is based on a knowledge of anatomy, physiology, pathology, bio-chemistry and bacteriology. To do good surgery, one must have the knowledge of surgical craftsmanship. Experimental surgery gives fundamental knowledge concerning physiologic activities of organs and the development of surgical methods of tackling diseases and defects." (Marcowitz — Experimental surgery).

II. THE SURGEON AND HIS PATIENT

The Surgeon is a specialised physician. In the make up of a surgeon a number of human qualities are to become blended. Sound surgical judgement, commonsense, scientific curiosity, human consideration and respect for human values and a good deal of hard work and training in surgical craftsmanship and art and an affection and regard for his patients are some of the important among these. It is difficult to have all these in very large measure but to the extent it is possible

will determine the quality of the surgeon. Modern surgeon has to change his ideas from the level of morbid anatomy to that of physiology of the diseased organs or pathology of the living tissues. He has to be a clinical physiologist more than a pathologist.

"Surgeon's judgement is the product of his intellect, training and experience and on his personality make up, his identification with one of his preceptors". Judgement may be radical or conservative depending on a number of factors, chief among which is the consideration of feelings of the patient and the result of the operation on him or her. It is well-known that women after removal of uterus may become psychologically upset and mentally unbalanced. To many of them "menstruation may be a curse but it is a gratifying one — symbolic of their femininity and their fertility." The same is true even to a greater extent of operations on men involving removal of penis. In general terms, amputation, mastectomy and total gastrectomy need serious consideration of the psychological reactions on the patients before decision is arrived at.

"Science is for life, not life for science" (Spencer). Understanding of the human being in the patient is very essential. None has greater need to know the "feel" or "pulse" of the patient than the surgeon because no one is given a freer hand in dealing with the lives of others. Patients are not to be dealt with as problems "but as a feeling person with hopes and ambition with disappointments and frustrations, who worked, loved and played."

Every operation is a "threat to security and is accepted by the patient only after repressing his anxiety" and relying on the sympathy, understanding and reliability of the surgeon—The patient hands over the direction of his destiny for the time being to the surgeon in full expectation that it will be possible to take it back from the surgeon when he gets restored to good health with the help of the surgeon's skill. There are some surgical conditions which develop or become exaggerated on account of anxiety and emotional stress. Many of these are attributed to liver, gall bladder, stomach and duodenum. Emotion plays an important part in the causation of peptic ulcer, hypertension and hyper-thyroidism. Some neurotic patients welcome operations and the more the merrier they will be. Beware of these patients; they are a menace to surgeons because they flit from surgeon to surgeon and welcome the sacrifice of a part of their body periodically. Sometimes organic diseases are masked by exaggerated neurosis.

Medical education is to some extent responsible for the division of man into organs and tissues and description of diseases not as one entity affecting the whole human being but affecting only parts. This is to some extent unavoidable but can be minimised to the barest possible extent. "Science in the search for truth rigidly denies the influence of emotions". Patients' anxiety increases during operation and surgeon has to make positive efforts to allay the anxiety of patients and of relations. Herein lies the difference between one surgeon and another.

After operation, patient expresses his anxiety in a different way — Air swallowing, exhibitionism, dependency are all well-known. During this period the surgeon has to train the patient to take back the command of the patient's destiny (which was handed over to the surgeon before operation) and to put the patient back on to his feet. Even after discharge of

the patient the responsibility does not cease. The after-care and re-habilitation have to be supervised. The pleasant relationship between surgeon and his patient and the understanding and affection will always be an enriching and rewarding experience.

In conclusion, I would like to emphasise that a surgeon and teacher should feel :

1. The great use of life is to spend it on something that will outlast it. (William James).
2. His duty is not to see what lies dimly at a distance but to do what is clearly at hand (Carlyle).
3. Beware how you take away hope from a human being (Oscar Wilde).
4. The true aim of a teacher should be to impart an appreciation of methods and not a knowledge of facts. (Karl Peason).

SUMMARY

1. Progress of Modern Surgery is summarised.
2. The relationship of surgeon and his patient and how this can be and should be improved by correct appreciation of one by the other, have been emphasised.

. . . .

References :-

1. Archives of Surgery.
(A. M. A.)
Oct. 1950.

2. Drugs, Devils and Doctors.

More good would come to our country through tongue control than through birth control.

* * *

Put old people to bed only as short a time as is absolutely necessary, for, they are like a foundered horse; if they got down it was difficult for them to get up, and their strength ebbed away very rapidly while in bed.

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Dr. (Smt.) SARAH J. SOURI,
M. B. B. S., D. G. O., Ph. D. (Glasgow)
Our First Principal.

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Some aspects of the variations in the deep flexors of the forearm

By

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Introduction :— Under the group of deep Flexors of the Forearm are included the following two muscles (1) Flexor digitorum profundus and (2) Flexor pollicis longus. The Flexor digitorum profundus is situated normally deep to the superficial flexors and on the front and medial side of the forearm. It takes origin (*a*) from the upper three fourths of the anterior surface and upper two thirds of the medial surface of the shaft of the Ulna and extends upwards as far as the insertion of Brachialis (*b*) from the Ulnar half of the anterior surface of the interosseous membrane in its middle one third (*c*) from the upper three fourths of the posterior border of the Ulna by a wide aponeurosis in common with the Flexor and Extensor carpi ulnaris muscles. The fleshy mass divides into four tendons for the four fingers which are inserted into the palmar surfaces of the bases of the distal phalanges.

The Flexor pollicis longus, is situated on the radial side of the forearm in relation to the radius in the same plane of Flexor digitorum profundus. The chief origin of this muscle is (*a*) from the grooved anterior surface of the front of the shaft of the radius from below the tuberosity and usually extends downwards upto a short distance above the Pronator quadratus (also belongs to the deep group of muscles) and (*b*) from the adjacent part of the interosseous membrane. It is inserted into the palmar surface of the base of the distal phalanx of the thumb.

Variations observed :- The variations with regard to the origins of these muscles and also some of the connecting fleshy muscular slips between these muscles have been encountered in the Dissection Hall and some of them have been preserved as Museum specimens. After a study of 200 limbs the variations are classified briefly as follows.

(*a*) The additional head for the Flexor pollicis longus was found to be present in 20% of the limbs and was taking origin from the coronoid process of the Ulna (Fig. 1).

(*b*) These fibres of the Flexor pollicis longus could be traced as far as the medial epicondyle of the Humerus in few cases. (2%)

(*c*) This additional head was absent in 67.5% of the limbs.

(*d*) The Flexor digitorum profundus and the Flexor pollicis longus were completely fused with each other and it was difficult to separate them in two limbs. (1%).

(e) A well developed fleshy slip of muscle from the Flexor digitorum sublimis descending downwards and laterally to be attached to the tendon of the Flexor digitorum profundus going to the middle finger, was noticed in 8.5% of the limbs. This slip of muscle according to some authors is known as the Accessorius ad flexorum profundum digitorum. It is said that this slip rarely arises from the coronoid process of the Ulna (Fig. 2).

(f) A few fibres of Profundus was taking origin from the shaft of the radius immediately below the neck of the radius in two specimens (1%).

TABLE

Types of variations observed	*Right upper limb* 110	*Left upper limb* 90	*Tot. no. of limbs* 200	*Tot. percentage*
(a) Additional head for the Flexor pollicis longus	22	18	40	20%
(b) Additional head for the Flexor pollicis longus extending as far as the medial epicondyle of the Humerus.	1	3	4	2%
(c) Absence of the additional head for the Flexor pollicis longus ..	71	64	135	67.5%
(d) Complete fusion between Flexor digitorum profundus and Flexor pollicis longus	2	—	2	1%
(e) Accessory flexor digitorum profundus	9	8	17	8.5%
(f) Additional head for Flexor digitorum profundus from the Radius.	1	1	2	1%
Total	106	94	200	100%

Discussion :- To explain these variations in the deep Flexors, the study of the evolutionary history of these muscles is necessary. In many of the lower groups of mammalia, the deep Flexors and the Flexor digitorum sublimis are all completely united to form a single muscular mass known as the common long Flexor muscle. In prosimians a common tendon extends as far as the hand. The division in the higher forms is associated with the refinement of the movements of the fingers. When we come to the study of higher groups of mammals, the muscular mass is split up into five groups, which are named according to their positions as 1. Condyloulnaris 2. Condyloradialis 3. Centralis 4. Ulnaris and 5. Radialis. The first three groups together constitute the Flexor digitorum sublimis and the last two portions still remain united.

In man and few other higher groups of mammals the Radialis gets separated from the Ulnaris and forms the Flexor pollicis longus and the Ulnaris remains as

Flexor digitorum profundus. Due to improper separation of these muscular

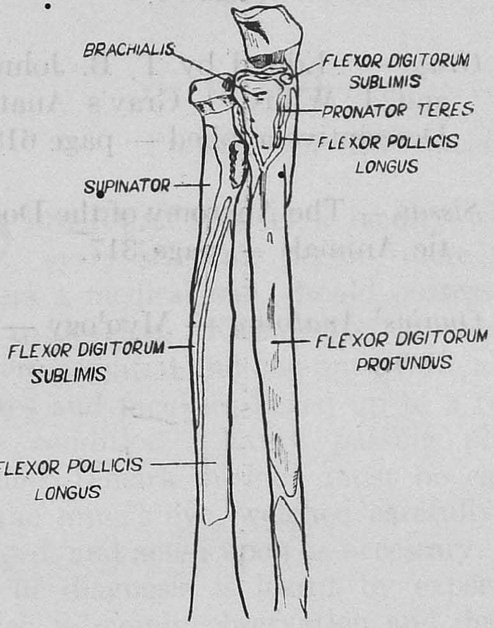


FIG. I.

masses various connections of muscular slip between these deep Flexors and the Flexor digitorum sublimis may be found in the adult condition. This explains the types of variations that may be encountered during dissection. These connections of muscular fibres which occur between these muscles may therefore be regarded as vestiges or remnants of the development of the muscles due to the incomplete and improper separation of a common Flexor mass.

The nerve supply to all these connecting slips could not be traced in every case. The nerve supply to the Accessorius ad flexorum profundum digitorum was from the Median nerve in a few cases. The Flexor digitorum profundus had its nerve supply from both Ulnar and Anterior interosseous nerve and the Flexor pollicis longus from the Anterior interosseous nerve only. This denotes that this slip of muscle must have been a portion of the Flexor digitorum sublimis which has not completely separated from the common Flexor mass to be incorporated along with the Flexor digitorum sublimis. In the same manner, if we are able to dissect the nerve supply for each of these slips of variations, we will be in position to fix and assign these slips their proper position in the grouping of the common Flexor mass.

There is clinical evidence that in 50% of the cases the muscle bellies of the tendons to the fore finger and middle finger are supplied exclusively by the Median nerve and the corresponding muscle bellies of the ring and little finger by the Ulnar nerve. In these cases the

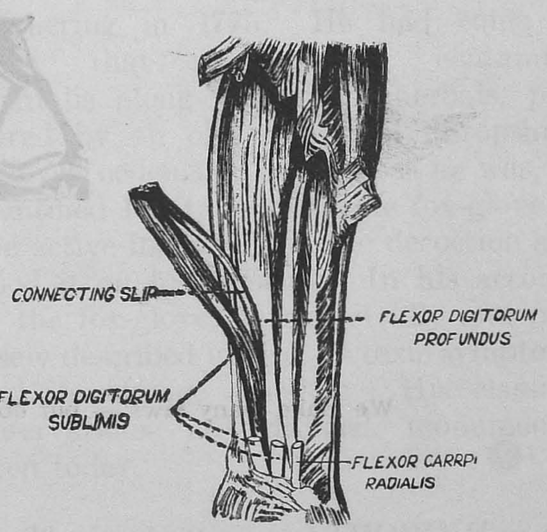


FIG. 2.

fibres of one nerve will overlap partially or completely the area served by the other.

LITERATURE CITED

1. *Anson J. Barry* — An Atlas of Human Anatomy — page 129 - 130.

2. *Cunningham* — Edited by James Couper Brash—Cunningham's Text book of Anatomy — page 497 - 498.

3. *Buchanan*— Edited by F. Wood Jones — Buchanan's Manual of practical Anatomy — page 470 - 471.

4. *Grant J. C. Boileau* — An Atlas of Anatomy — 59.

5. *Grant J. C. Boileau* — A Method of Anatomy — page 128 - 129.

6. *Gribble Lloyd Raymond* — Comparative Anatomy (Laboratory Manual) — page 90.

7. *Gray* — Edited by T. B. Johnston and J. Willis — Gray's Anatomy Descriptive applied — page 618.

8. *Sisson* — The Anatomy of the Domestic Animals — page 317.

9. *Quains' Anatomy* — Myology — section.

We make many laws — but obey few.

*   *   *

Nothing endures unless it is of use in the world and in the economy of nature.

*   *   *

Reasoning from cause to effect is a development of adolescence and early manhood.

*   *   *

Of all co-operative efforts Public Health is the most important and gives the greatest returns.

It pays to observe

By

Dr. M. N. Guruswamy, B. A., M. B. B. S., M. S. (Michigan)

Professor of Pharmacology, Madurai Medical College.

OBSERVATION is a faculty which every scientific person, more than others a medical one, should possess and try to develop. Keenness of observation is very essential and one must train all his senses and faculties keyed up to a receptive condition. Every passing phenomenon, remark or idea must be caught in the mind's eye, weighed carefully and judged, and acted upon as necessary. The art of diagnosis is learnt by experience which is merely observation and deduction. Therapeutics is an art developed from the experience of past and present workers.

There are innumerable instances in the medical history where persons exerted their keen faculty of observation and utilised it fruitfully to themselves and to humanity. A few striking and illustrative instances are given below.

Leopald Auenbrugger (1722-1809) was the son of an inn-keeper of Graz and he had often used percussion to ascertain the level of wine in his father's casks. He applied this principle to human chest when he became a physician and thus started the art of PERCUSSION.

Renne Laennec (1781-1826) was the discoverer of STETHOSCOPE. It is said that, inspired by having noticed two children playing with a log of wood, one tapping and scraping it while the other listened by holding his ear against the sawn end, Laennec rolled a piece of paper into a cylinder, and placing one end on his patient's chest and the other to his own ear, discovered that he could hear heart sounds very well. Thus the use of stethoscope was introduced.

DIGITALIS still remains supreme among the drugs used in the therapy of cardiac diseases. Its utility in the treatment of oedemas, especially those due to heart diseases, was shown by a country practitioner, William Withering in 1775. He had come to know that a decoction, containing Digitalis along with other herbals, prepared by an old woman in Shropshire, relieved oedemas. Botanist as he was, he identified Digitalis or purple fox-glove as the active ingredient in the decoction and tried it on his patients. In his account of the fox-glove, he has vividly and precisely described its use, its toxic symptoms and the dosage schedule. His classical observations are deemed monumental even today.

The local action of ATROPINE on the eye, producing mydriasis, was discovered accidentally by Daries (1776), a drug clerk of Hamburg who inadvertently rubbed some of the extract into his eye.

One of the earliest direct observations of the value of ANTISEPSIS was made by the young physician Ignaz Semmelweiss (1818-65). His keen observation of the

infectious nature of disease and of how simple antiseptic technics could prevent infection during child-birth, permitted him to make a far-reaching discovery. As first Assistant in the Maternity Hospital at Vienna he observed that there was higher mortality in the wards open to the students than in the wards to which only midwives were admitted. He sought to explain this, postulating "puerpueral fever was caused by conveyance to the pregnant women of putrid particles derived from living organisms through the agency of examining fingers." He insisted that students coming from dissecting rooms and post-mortem theatre should wash their hands in a solution of chloride of lime. Immediately the mortality in the wards under his care fell. This was the start of antiseptic system which was later developed by Lord Lister.

The idea of VACCINATION was conveyed to Edward Jenner (1749-1823) by the chance remark of a dairy maid, "I can't take smallpox, for I have already had cowpox." Cowpox was a relatively mild disease, transmitted from the udder of the cow to the hands of the milkers. Jenner felt that such knowledge might be put into practical use. In 1796, he "vaccinated" a boy with pus from the hand of a dairy-maid infected with cowpox. Eight weeks later he inoculated the boy with smallpox and no disease appeared. Value of vaccination was thus found and mortality of smallpox fell steadily.

In 1842, a country practitioner named Crawford Long (1815-78) of Jefferson, Georgia, had participated in "ether frolics", and had noted that bruises or minor injuries sustained at the time were unaccompanied by pain. He therefore administered ether to a boy, James Venable, and painlessly excised a tumour of the neck,

At Hartford (Conn.) in 1844, Gardner Colton, a lecturer in chemistry, exhibited the effects of "laughing Gas." Horace Wells (1815-48), a local dentist, noticed that the victim who inhaled the gas injured his leg in his excitement, but felt no pain. Next day Wells requested Colgon to administer the gas to himself while his friend Dr. Riggs extracted a molar tooth. As Wells regained consciousness he exclaimed, "A new era in tooth-pulling". In reality a new era of ANAESTHESIA was born.

The introduction of COCAINE into medical practice by Koller of Vienna is an interesting phase of medical history. In 1884, Sigmund Freud the psychologist obtained a sample of cocaine from Merck and in conjunction with Carl Koller, made a study of the pharmacological properties of cocaine. They confirmed Frederick Wholer's earlier observation, that cocaine had a somewhat bitter taste and exerted a numbing influence on the gustatory nerves, so that they became almost completely insensitive. It occured to Koller to try the effects of cocaine on the sensory nerve endings of the conjunctiva and cornea. Koller used the drug in the eyes of frogs and guinea-pigs, then in his own eyes and those of several of his colleagues. He observed the potent local anaesthetic action of the alkaloid. Later, Freud stated, "Koller can be rightfully considered the discoverer of local anesthesia, with cocaine, which has been so important in minor surgery."

ACETANILID was discovered accidentally by one of Professor Kussmank's assistants who took the compound and noted a drop in his body temperature.

EPINEPHRINE was discovered because Dr. Oliver made extracts of various tissues of animal and human body and

injected them subcutaneously into his own son — a most invaluable human guinea-pig. He discovered that an extract of the adrenal gland was the only tissue extract which accelerated and strengthened his son's pulse. This he confirmed on dog's blood pressure at Professor Schafer's laboratory.

In 1917, Wenckebach made an observation that when he treated some of his malarial patients who had also auricular fibrillation, with large doses of quinine, not only did they get cured of malaria but at the same time their fibrillation also stopped. Later, the Dextro-rotary isomer, QUINIDINE was found to be more potent.

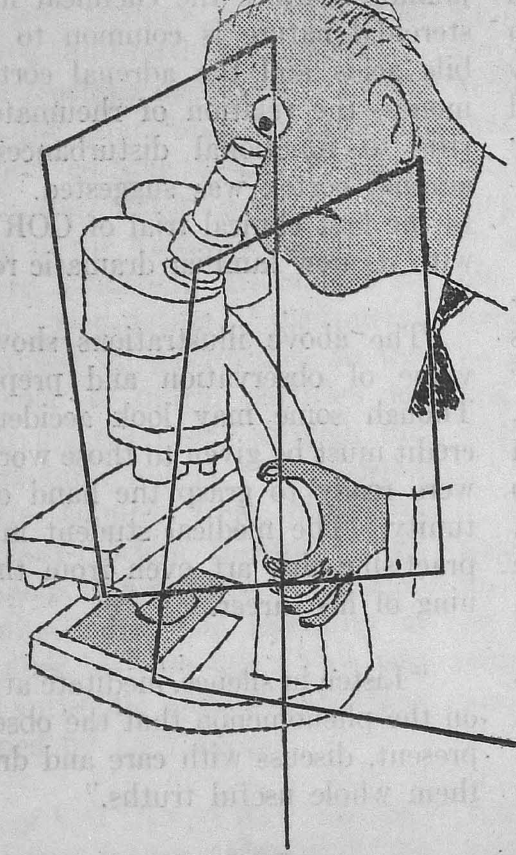
Alexander Fleming, at St. Mary's Hospital, London, in 1938 observed a contamination of a culture plate of staphylococci by spores of species of PENICILLIUM mould. Such contamination is not uncommon in bacteriological work and must have been observed many times previously. In this particular instance the culture plate contained staphylococcal colonies which had been well developed and now were showing signs of dissolution. This extraordinary and unexpected finding resulted in further investigation and started the era of antibiotics.

During later half of last decade Hench of the Mayo Clinic observed that women suffering from rheumatoid arthritis experienced a remission of their symptoms during pregnancy and recalled that other observers had noted a reversibility of the rheumatoid process in hepatitis and jaundice. Since the chemical nucleus of steroidal nature is common to both the bile acids and the adrenal cortical hormones, the relation of rheumatoid arthritis to functional disturbances of the adrenal cortex was suggested. This led to the first clinical trial of CORTISONE with its now familiar dramatic results.

The above illustrations show us the value of observation and preparedness. Though some may look accidental, full credit must be given to those workers who were ready to grasp the hand of opportunity. The medical student must start practising this art even from the beginning of his career.

" Listen in silence, meditate attentively on the phenomenon that the observations present, discuss with care and draw from them whole useful truths."

" An experienced observer is one who knows enough to wait in the silence of imagination, in the calmness of spirit before forming his opinions, to wait the report of senses actually exercised, who compares the result of the one with the products of the other ; who corrects and fortifies this one by the other, who finally confronts this result with those whose observations and experiences have impressed on his memory, in order to establish finally on this basis, judgement, at least possibly erroneous, in the search of nature and cause of disease and their treatment."



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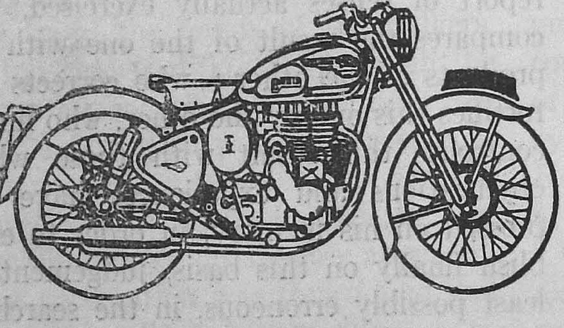

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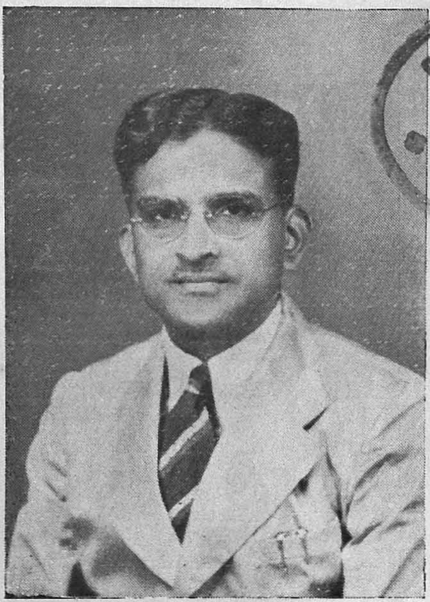

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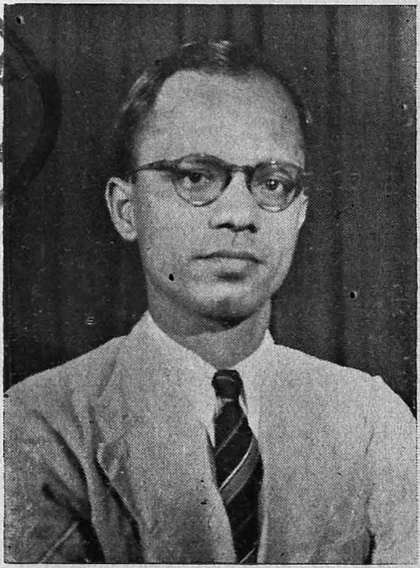

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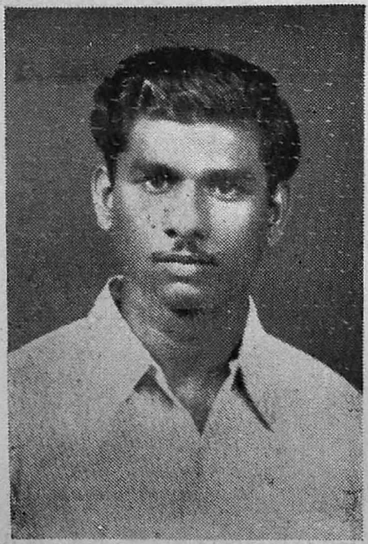

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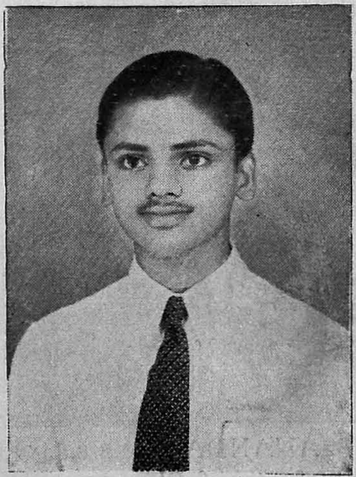

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15 NOV 1956

Know something about Cancer

By

DR. S. P. VEDACHALAM, M. D.,

Lecturer in Pathology, Madurai Medical College.

CANCER (Tumour)is *defined* as (i) an abnormal mass of tissue (ii) the growth of which exceeds and is unco-ordinated with that of normal tissue (iii) and persists in the same excessive manner after cessation of the stimuli which evoke the change.

The *causes of cancer* are far too many. Most of the factors responsible for cancer have been grouped as, (i) Preparatory causes, (ii) exciting causes. Preparatory causes have been understood by experimental work. The agents responsible for preparatory phase are called carcinogens: The exciting causes are not well-understood and most of them are assumed. In addition to these causes there are many agents playing an associated role, and they have been called co-carcinogens.

The *Preparatory causes* (exogenous or endogenous) have been found to be of the nature of chemical agents, sex hormones, Physical agents — radiation, and filtrable viruses. In the preparatory phase cells — specially altered cells, give rise to cancer very frequently.

Derivatives of Tar (analysed by French workers) — hydrocarbon, (Benzpyrene) give a high degree of carcinogenic activity. Cholic Acid, occurring naturally in body converted into methyl cholanthrene, (related to hydro-carbon mentioned above), is a very powerful agent in cancer production.

Estrogenic cancer is not produced in the skin, but in ovary, adrenal, testis, etc. On a selected susceptible hereditary species the estrogens serve as co-carcinogens.

The Milk factor effect talked of, is worked out to be due to the presence of viruses.

Physical agents :- Exposure to sunlight for a long time gives rise to cancer of skin. This is confirmed by experimentalists. The mode of action of Actinic Ray is still obscure. X-ray workers' dermatities, and such X-ray workers later getting carcinoma or sarcoma has been noted. The radio-active substance as seen to effect the worker, engaged in painting of dials with luminous substances, getting Osteogenic sarcoma is recorded. After atom bombing of Japanese Islands there is increased incidence of Leukaemia due to increased radiation effect.

Viruses producing cancer in human being is not known (?) In animals it is species-specific, and type-specific and coterminus with viruses.

Age :- In the young, Neuroblastoma of adrenal and Wilm's tumour of the kidney. In other cases long life span is taken for the preparatory causes to act.

Sex :- Males show increased incidence of cancer of lip, oesophagus and Lympho Sarcoma.

Heredity :- It is said that there is no primary gene for cancer. There seems that chances in occurrance give wrong impression, excepting in familial retino blastoma and few other conditions. This subject is being investigated into, and it is becoming more complex.

Chronic Irritation and Trauma :— Agents that cause chronic irritation and chronic inflammation by themselves cannot produce cancer. Giving an insecticide (Acetamino fluorine) by mouth, experimentalists could not produce Carcinoma of thyroid, but of Liver, breast, bladder and lungs etc. When this was given with Thiourea which produces hyperplasia of thyroid cells, carcinoma was produced. *Hyperplasia* seems to be a necessary factor in the development of cancer. Thence probably, if chronic irritation is helpful in producing cancer, there may be hyperplasia of the cells in regions which are acted upon by carcinogenic agents. *Trauma* to be blamed as a cause, must have been at least of one month's duration (maximum three years). Otherwise it may draw the attention to already present state, or it may be coincidental.

Exciting cause :- Preparatory phase might affect large groups of cells. The exciting phase produces effect in a few cells and changes inside the cell which are irreversible. Though nothing definite is known, change in intracellular enzyme or filtrable viruses have been postulated. The liver cancers produced by experimental Pathologists have been prevented by feeding the animals with vitamin B. Complex. Probably Vitamin B of the enzyme system is replaced by carcinogens, so that abnormal enzyme is produced in producing cancerous cells and perpetuating the state. At this stage few of the new ideas postulated about the change in the gene may be considered. Genes are band like structures along chromosomes. The genes are enzymes. The enzymes (genes) may be altered by virus infection or by carcinogens, probably by their incorporation, or serving as enzyme poisons to give the altered cell metabolism (altered or abnormal enzyme system-Rogue enzyme). Viruses are self-perpetuating principles contained within the cells. They are transferable to daughter cells.

Chemotherapy, Radiation and Antibiotics :- Chemotherapeutics are Mitotic poisons. Urethane, Mitrogen Mustard etc. produce changes which are same as those produced by X-Ray. With X-Ray the phases of mitosis and immature cells in active state are easily damaged.

Four antibiotics are said to have been developed and isolated which have specific destructive effect on cancer virus. The first two : Tracin and Magnesium Tracinate come from Bacteria. The third Gregormycin comes from Streptomycete. The fourth Gregorcin comes from a mould. Gregorcin is so active that the use of other antibiotics has been discontinued. The antibiotic has proved to be effective clinically in some far-advanced cancers.

Diagnostic Method :- Smear examination is useful in cases of bloody discharge from nipple. Cervical smear and smears of bronchial secretion and aspiration fluid are examined.

Biopsy (Needle) from liver, testis, spleen and kidney is being followed. Liver and testicular biopsy may be practised in all cases.

Lymph glands of cervical group are more advantageous than inguinal or other superficial group.

Lung biopsy with a bronchoscope, or needle biopsy with auxiliary aid of fluoroscopy is also being practised.

Punch biopsies of growth of colon, bladder and cervix are in vogue. It is more advantageous to use Bone biopsy, setting aside the other disadvantages that may result therefrom.

(All biopsies which include a bit of deeper tissues are helpful for study)

Frozen section reporting must be made available near every operation theatre.

Etiological study of exfoliated cells must be practised as complementary to histo-pathological report. Every clinical laboratory attached to the hospital must have arrangements for such studies.

(Characteristics, classification and Nomenclature of tumour are not included in this note for convenience).

The old represent the past and the young the future.

* * *

Knowledge is static; wisdom is active and moves knowledge making it effective.

* * *

The significance of an ailment should not be measured by the inconvenience it causes at that time but by what may come of it 4 or 5 years later.

* * *

When knowledge is translated into proper action we speak of it as wisdom,

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The Mammary gland and its function

DR. K. P. ANANDAN, M. B. B. S., M. SC.,

Professor of Physiology, Madurai Medical College.

IN the class of animals known as mammals the provision of a nicely balanced diet for the offspring synthesised from its own tissue is one of the outstanding marvels in nature. However, the exact mechanism of the processes underlying the development of the mammary glands, the synthesis of milk and the process of 'let down' are only imperfectly understood. The investigation of these problems is rendered difficult by the fact that considerable species differences exist and it is not possible to evolve a uniform theory applicable to all animals.

The prepubital mammary gland in the female like the mammary gland of the male consists of few short ducts radiating from the nipple. While the glands of the male do not differentiate beyond this infantile condition those of the female undergo characteristic and consipicuous changes. During puberty, the gland enlarges. This enlargement is partly due to the extensive growth and proliferation of the duct system and partly due to the deposition of fat. During pregnancy a further characteristic differentiation occurs. The ducts not only become extensively arborised but also the terminal twigs end in secretory alveoli constituting a surface from which milk arises. At parturition the secretion of milk is intensified and the gland gradually involutes until lactation ceases.

The efficient functioning of the mammary gland involves synchronisation of several hormones. The effect of each hormone varies with the species. Oophorectomy in all species of animals reduces the mammary glands to infantile condition. The administration of ovarian hormones induces the growth of the atrophic glands in castrate female and normal male. These observations indicate that the growth of the mammary gland in the female is due to cyclic release of ovarian hormones during each and succeeding menstrual cycle. The growth of the mammary gland during pregnancy is likewise due to the two ovarian hormones oestrogen and progesterone acting synergically. In human beings oestrogen produces extensive growth of the duct system and progesterone produces differentiation of lobulo-alveolar system. During pregnancy the supply of these two hormones is augmented from a new source peculiar to pregnancy namely the placenta.

A wealth of experimental evidence has been produced to show that placenta not only produces gonadotrophines but also considerable quantities of oestrogen and progesterone. Thus by the end of pregnancy the mammary glands are in organic readiness for the secretion of milk.

After the anatomical differentiation has reached a certain stage the initiation and maintenance of lactation depend largely upon the anterior hypophysis. Hypophysectomy in a pregnant animal renders milk secretion impossible and in lactating animal promptly terminates

milk production. The hormone of the anterior hypophysis having specific action on milk secretion has been named prolactin by Riddle. Prolactin can act only on a gland already prepared by oestrogen and progesterone. Prolactin has been identified in both the male and female pituitaries. Its concentration fluctuates during different periods of life cycle. Its significance in the male pituitary gland is not known.

The question may be asked— why does not milk secretion occur during pregnancy? The concensus of opinion is that high levels of oestrogen in the blood originating from the placenta may inhibit the effectiveness of prolactin. That lactation normally begins only after the placenta is dislodged and the oestrogen levels diminish is consistent with this hypothesis. Milk secretion being a complicated process it is quite possible that a large number of unidentified factors in addition to prolactin may be concerned with the initiation of milk secretion.

SYNTHESIS OF MILK

It is not generally recognised that the synthetic capability of the mammary gland is only second to that of the liver. Considering the simple histology of the gland this performance is astounding. All the major constituents of the milk-casein, lactose and fatty acids are synthesised in the mammary gland from raw substances obtained from the blood by one and the same cell. In order to accomplish this, the mammary circulation during lactation must necessarily be high and it is estimated that a good cow has a mammary circulation of 200 litres per hour.

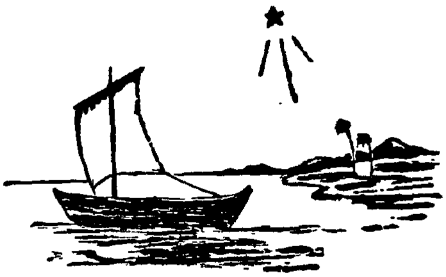
The mechanism of synthesis of various constituents is not properly understood. Recent work has shed some light on this complicated process, Casein of the milk is made up of a large number of aminoacids and phosphorous. It was shown previously that there is a reduction in aminoacid content of the blood as it passes through the lactating mammary gland. By incorporating radio active carbon in the carboxyl groups of lysine and tyrosine, it has been recently demonstrated that these two constituents of the casein molecule are derived as such from blood. The phosphorous of the casein is derived from the inorganic phosphates of the blood. Nothing is known about the synthesis of lactalbumin.

The mode of synthesis of disaccharide lactose has also been a controversial subject. It was assumed that the glucose, galactose and glycoproteins entered into its synthesis. Recent experiments seem to show conclusively that glucose is the main precursor of this sugar and circulating acetates a subsidiary contributor.

Until about 1950 practically nothing was known about the synthesis of milk fats. It was assumed on very unsatisfactory evidence that the phospholipin of the blood was their source. While it is beyond the scope of this article to discuss the details of the chemical process concerned with their synthesis, the brilliant work of Folley and others has established circulating acetates as its source and they have demonstrated that the alveolar cell of the mammary gland is capable of synthesising both long and short chain fatty acids from this comparatively simple substance.

The phenomena of 'let down' of milk i.e., expulsion from secretory portion to the collecting sinuses is also believed to be under hormonal control. The hormone in all probability is the oxytocin of the posterior lobe of the pituitary gland. This hormone is reflexly secreted during the act

of suckling. As the mammary gland contains very little plain muscle fibre the site of action of hormone remained problematical. The recent histological work of Richardson shows that there are large myoepithelial cells surrounding each secreting alveolous and there is good reason to believe that the hormone of the posterior pituitary acts on these cells expelling the milk from alveloi into the ducts.



We have still left on the earth groups of people representing every age of civilisation (just as evolution has left the intermediate stages.)

* * *

Man has taken what he wanted dependant on strength and cunning, but he has been bettered by religion.

* * *

When you want support for public health measures you have to educate the people. When you start to educate the people you should begin with the women because they will fight for the health of their children.

* * *

One meets with many men who have been fine students and have stood high in their classes, who have great knowledge of medicine but very little wisdom in application. They have mastered the science and have failed in the understanding of the human being.

* * *

It is easy to philosophise — the philosopher is said to be one who bears with equanimity the sufferings of others.

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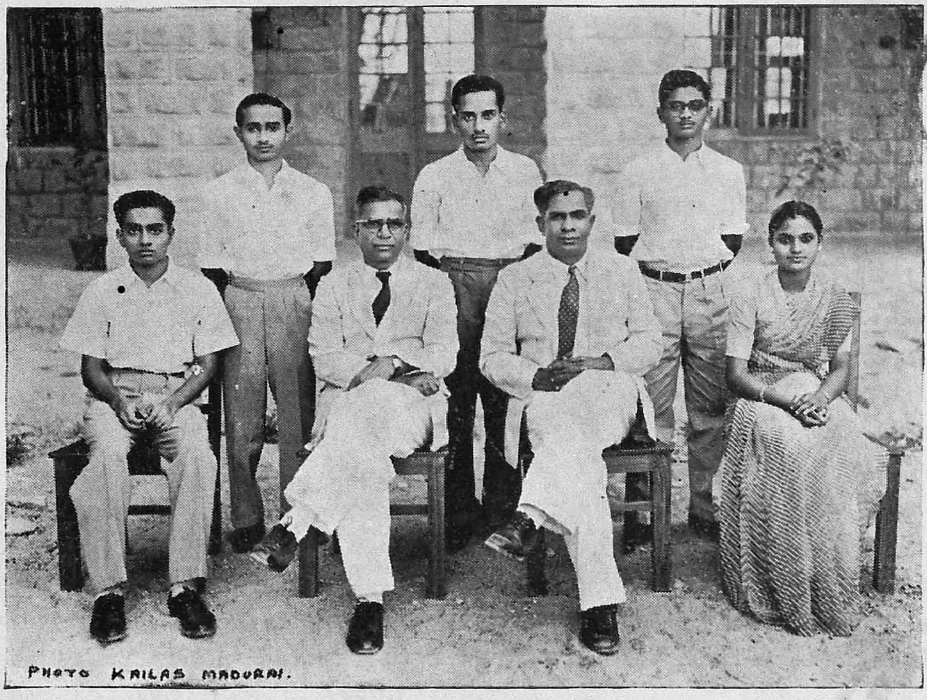

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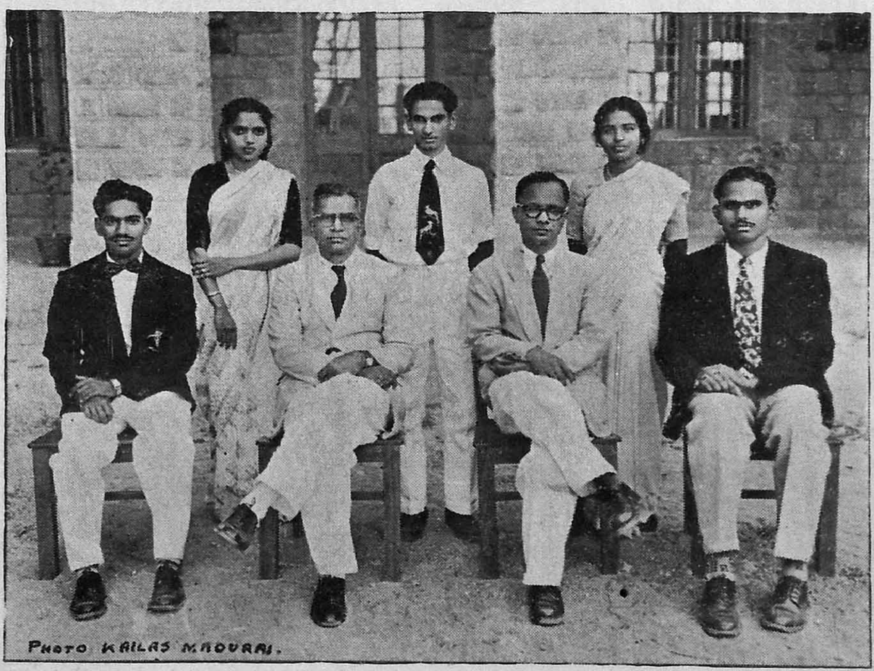

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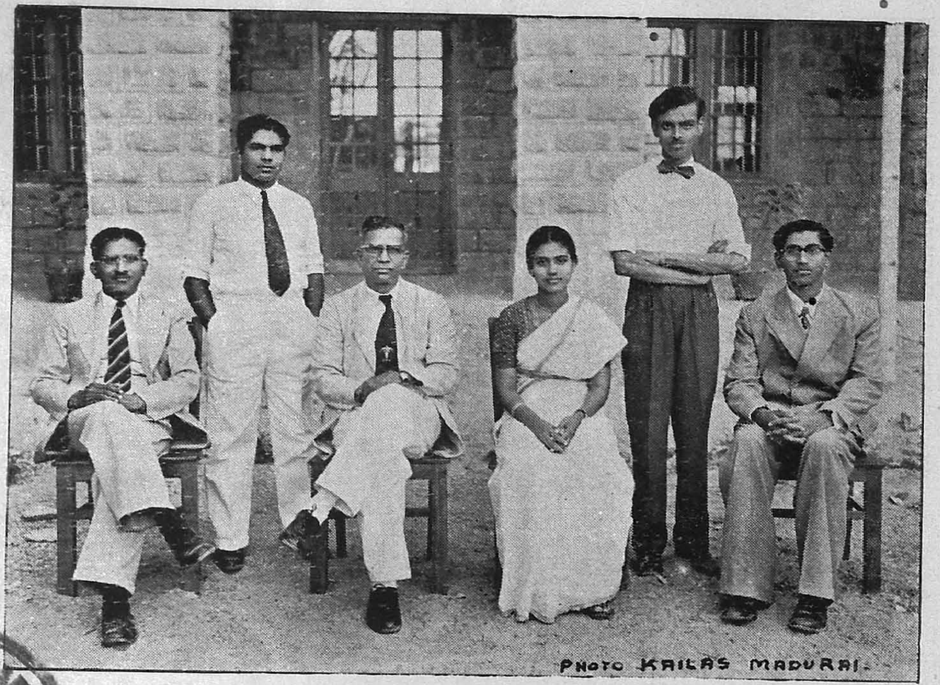

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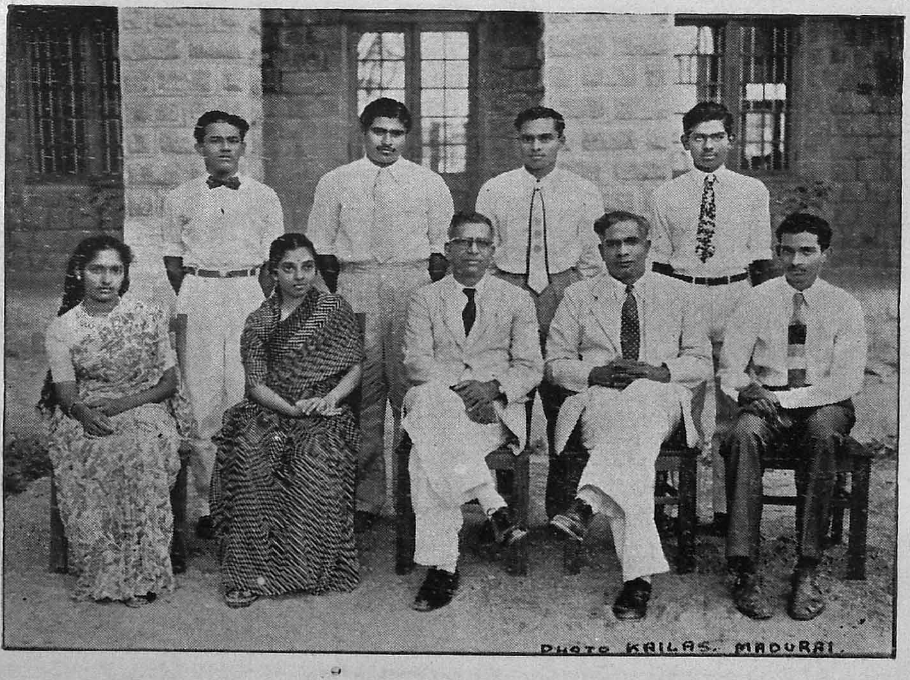

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Bacteria - their role and nature

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IT IS no exaggeration to say that without bacteria life will become impossible. They are present everywhere in nature, where conditions for living exist. They are not present in fire, burning volcanoes and similar situations, where life is impossible, and also in the normal living tissue. It is needless to name all the existing bacteria, nor is it easy. Among thousands of species, only a few are pathogenic, the rest being nonpathogenic and essential for day to day life. About fifteen hundred species of bacteria of all types have been described so far.

The status of bacteria in the evolutionary scale is a very controversial point. Some people place them between the plant and animal, probably as a connecting link between them. The majority is of the opinion that they are the simplest forms of plant life but devoid of chlorophyll, which is the main point of differentiation between the plant cell and animal cell. Rene J. Dubos is of the firm opinion that bacteria possess all the properties of a living cell, namely: a definite nucleus, a cell wall and wall protoplasam. Even today one can find in the literature the most varied and apparently incompatible statements concerning the nuclear apparatus of bacteria. There are many theories propounded, one of which says that bacteria do not have nuclei or the nuclear material is diffusely distributed throughout the protoplasm and organised as an invisible string, analogous to a single chromosome. Another theory says that the whole bacterial protoplasm is a nucleus, while some others affirm that the nuclei do exist but are too close to the resolution of visual microscopy to be readily seen. Another section is of the opinion that no special stain to detect the presence of nuclei has been discovered, and hence they remain invisible. The very fact that a number of theories exists speaks for the unsatisfactory understanding of this aspect.

Bacteria occur mainly in three forms: spherical (coccus), rod shaped (bacillus) and spiral. There are further sub divisions. The size of bacteria varies from $0.5\,\mu \times 0.2\,\mu$ to $60\,\mu \times 5\,\mu$. ($\mu = 0.001$ m. m.) Some of the pathogenic organisms are so minute that they are not visible even under the most powerful compound microscope and they are termed viruses. It has been tentatively agreed that the bacterial cell has a cell membrane, though the exact nature of it is still disputed, with a distinct cell substance — the protoplasm. The controversy regarding the nuclear apparatus has been already dealt with. In certain species, there are certain intracellular granules present which can be easily demonstrated owing to their greater affinity for dyes than the rest of the cytoplasm, as in the case of the diphtheria bacillus. Certain species of bacteria are characterized by the possession of a capsule, a mucoid, probably protective covering. In some species spores are formed by the condensation of protoplasm with the formation of a tough

envelope to resist against unfavourable conditions, like heat and dessication. Under favourable conditions spores germinate into vegetative cells and the main object of sporulation is the preservation of the species. Motility is another unique property of many species of bacilli. For all general purposes, cocci are non-motile. While many bacilli are motile by virtue of their flegella, the rest are non-motile. Spirochaetes are also motile, but unlike the flagellar motility of bacilli, the motility here is due to the propulsion of the whole length of the organism. Since there is no sexual phase of reproduction, multiplication is by division or simple fission, and depending upon the nature of division, groups of different types are found.

The growth of bacteria depends upon various factors. On the basis of gaseous requirements they may be divided into two classes: the aerobes, which require molecular oxygen for their normal growth, and the anaerobes, which require a medium absolutely devoid of molecular oxygen. There are many intermediary forms such as microaerophiles which require a small amount of oxygen for their survival, and facultative anaerobes which are aerobes but possess the alternate faculty to be anaerobes when necessary. Similarly, on the basis of food requirement, bacteria may be divided into autotrophs and heterotrophs. The autotrophs (self-helping) live by utilising carbon and nitrogen, the former from inorganic sources like the atmospheric carbon dioxide and the latter from the soil. Most of the autotrophs belong to the group of soil bacteria. The heterotrophs are not capable of this type of synthetic process and can live only in the presence of organic compounds of carbon and nitrogen ; some of them are also capable of utilising ammonia as their nitrogen source. They are either parasitic or saphrophytic. All pathogenic bacteria come under the heterotrophic group.

Most bacteria can be grown artificially, on artificially prepared food called culture media, each type of culture medium catering to the special needs of a particular type. Almost all the pathogenic organisms can be grown artificially (cultured), but all attempts to culture a few, for example the lepra bacillus, have failed. Unless an organism is cultured it is impossible to make a thorough study of its nature and activity, which is of paramount importance in diagnosis and treatment. For this, materials from sick individuals are cultivated on artificial media. Sometimes they are also "cultivated" on experimental animals.

The role of microorganisms in causing infections in man, animals and plants is well known. However, let us not on that account completely condemn the whole bacterial world as our enemies, but show an occasional grace of gratitude for all the steady silent good work done by most of them. That will be obvious when we consider a few further aspects of microorganisms.

An unique property of microbes is fermentation, a process by which complex carbohydrate molecules are split. The main process is one of oxidation and the end products are acids and alcohols. Alcohol, we know, is of great use in Arts and Sciences, not to speak of the luxury of drinking for artificial stimulus. Likewise, the housewife owes everyday to fermentation in making vinegar, in souring milk into curd before churning for the purpose of removing butter, in the making of cottage cheese and in leavening dough by the agency of yeast. She has to be eternally indebted to microbes for this work. Another interesting pheno-

menon exhibited by microbes is known as antibiosis or antagonism, wherein during the process of their biological activity, products are formed so that other species of bacteria cannot thrive in their presence, and a good example is that of Lactobacillus, which is responsible for the souring of milk, producing lactic acid in such abundance that no putrefactive bacteria can grow in milk and spoil its flavour and soundness.

Like fermentation, decay and putrefaction are brought about by microorganisms. Decay is a complicated process in which organic materials are changed by oxidation into simpler chemical forms to be utilized by the lower animals and plants. True, decay takes place in the presence of abundance of air or oxygen. The offensive odours are rarely produced in as much as oxidative processes are so complete that the end products are simple and without foul odour. Putrefaction, on the other hand, is an anaerobic process, which takes place in the absence of molecular oxygen and as such the end products are not entirely oxidized and are offensive to the sense of smell. Putrefactive processes are, however, being harnessed by man for various purposes; one of the best examples being the septic tank where night-soil is digested in the relative absence of air.

Plants derive their nitrogen almost wholly from nitrates. The latter are not formed as such in the soil. The bodies of animals and plants constantly return to the soil directly or indirectly. Such complex materials have to be reduced to the simple form of nitrates. This process of simplification is carried on by microbes, a process without which obviously life will not be possible. Even this is not enough. Soil has to be periodically replenished with nitrogen from other sources. This is done from the atmosphere. But air nitrogen by itself cannot become nitrate. This function is being fulfilled by certain soil microbes. From these it is quite evident how Nature has with extreme forethought and cleverness created a self-adjusting mechanism in Her economy, of which a very vital link is assigned to Her most insignificant (from man's point) progeny, the microbes.

Many bacteria exhibit the phenomenon of symbiosis (capacity to live together with mutual benefit), particularly the soil bacteria. Some of them grow as nodules in the roots of the leguminous plants, absorb nitrogen from the air and transform it into compounds which can be readily utilized by the host plant, the bacteria themselves living on the plant sap. Such highly nitrogenous plants are used as manure for the soil, which in turn increases the output of crops. This is the principle involved in the "Rotation of Crops". Thus, soil fertility is highly dependent upon the action of nitrogenous bacteria.

A very important contribution of bacteria has been recently brought to light, viz., the elaboration of antibiotics. Achromycin, aureomycin and terramycin are a few of the many antibiotics worked out from the soil bacteria, and the role of these antibiotics is too wellknown to be mentioned here. How this has revolutionised the treatment of such fatal diseases as tuberculosis, meningitis, typhoid fever, is only too well known to mention. The whole phenomenon brings to light the interdependence of the whole living creation and the superhuman cleverness with which Nature has designed it.

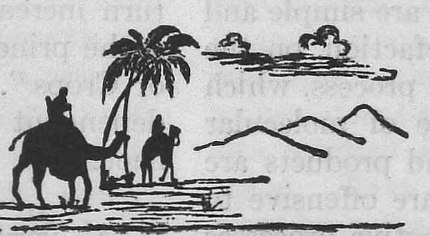
A few species of bacteria lead a life in which they neither help nor harm the

host under normal conditions. They are termed commensals. Various regions of the body are inhabited by such commensals, e.g., Staphylococcus albus of the skin, Doderleins bacillus of the vagina, Streptococcus viridans of the pharynx, Xerosis bacillus of conjunctiva and Bacterium coli of the colon are a few of the many. But the only danger is that these commensals under different environmental conditions may become pathogenic, a good example of which is that of Bacterium coli which is a non-pathogen as long as it is in the bowel, but once it leaves it and enters the gall bladder, peritoneum or urinary bladder, it produces cholecystitis, peritonitis and cystitis respectively.

In the words of Joseph Lister "Bacteria are everywhere about us and we are constantly under the necessity of adopting ourselves to their presence." But I make bold to say that this is only a partial picture justified by the imperfect knowledge of Lister's time. Although microbes as pathogens are our major interest, in the march of Nature they are indispensible as shown above. They are most often sinned against, than sinning. Let us therefore be also grateful to these silent invisible workers toiling for man and other macroorganisms.

Long live non-pathogenic bacteria and curse unto the pathogenic bacteria !

My thanks are due to Dr. N. G. Pandalai, M.D ; D.T.M. ; F.R.C.P., Professor of Bacteriology, for his kind guidance.



It is better to think and sometimes to think wrong than not to think at all.

* * *

The average intelligence controls the form of Government.

* * *

Democracy has its birth on the failure of autocracy.

* * *

The future of any country depends on the proper use of its most intelligent men.

* * *

One of the signs of a truely educated people and broadly educated nation, is lack of prejudice.

Accessory obturator nerve — Is it a misnomer?

By

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THE account given of the nerve in the latest edition of Gray's Anatomy (1954) is as follows :-

"The Accessory Obturator nerve is present in about 20 per cent. of subjects. It is of small size and arises from the ventral branches of the anterior primary rami of the third and fourth lumbar nerves. It descends along the medial border of the psoas major, crosses the superior ramus of the pubis behind the pectineus, and divides into branches. One branch enters the deep surface of the pectineus ; another goes to the hip-joint ; a third communicates with the anterior branch of the obturator nerve. Occasionally the accessory obturator nerve is very small and supplies only the pectineus."

This nerve was first described by Winslow who named it as 'Nerve Accessorius Anterioris Cruralis'. Schmidt, later described it in greater detail and suggested the present name of Accessory Obturator nerve, because he found it to invariably communicate with the obturator nerve.

The following are some of the workers who have reported on the Accessory Obturator nerve :-

Eisler (1892) — 20% of his dissections.

Schmidt — 8 out of 70 dissection, i.e. 11.4%

Pokorny — 3 out of 40 dissections, i.e. 7.5%

Krause — 10% of his dissections.

(*The latter three quoted by Eisler.*)

Paterson (1894) — 6 out of 40 dissections, i.e. 15%.

Bardeen & Elting (1901) — 20 out of 246 dissections, i.e. 8.1%.

Bardeen (1907) — 21 out of 250 dissections i.e., 8.4%.

Horwitz (1939) — 39 out of 228 dissections i.e., 12.7%.

Narayanaswami. T. (1953) — 4 out of 24 dissections, i.e. 16.6%.

TWO OPPOSITE VIEWS :

Paterson (1901) from a study of 20 bodies *observes,* (1) The accessory obturator nerve was found in three bodies bilaterally, (2) that he did not find any contribution from the obturator nerve to the pectineus muscle in any of the 20 bodies he dissected, (3) that in all the 3 bodies in which the accessory obturator nerve was seen, that nerve was the sole innervator of the pectineus muscle, and (4) that in all the other 17 bodies it was the femoral nerve which supplied the pectineus muscle. He *agrees* that as des-

cribed by Gadow, in the Cyclodus, the iliopsoas component of the Pubi-ischio-femoralis internus is supplied by a nerve which is seen to branch off from the obturator nerve before the latter enters the obturator foramen, while the pectineus component is supplied by the femoral nerve. Hence he *concludes* that the femoral nerve is the real source of nerve supply of the pectineus muscle, and that the accessory obturator nerve or any branch from the obturator to the pectineus or iliopsoas muscles would only represent an aberrent course of the nerve fibres of the femoral group which are either detached from the femoral to constitute the accessory obturator nerve, or are incorporated into the obturator nerve proper to branch off from the same more distally.

Eisler (1892) *contends,* (1) that the division of limb musculature in man into dorsal and ventral portion is not strictly to be traced in the respective territories of the femoral and obturator nerves, (2) that the nerve elements belonging to the ventral territory may be normally bound up in the femoral nerve in those branches which supply the pectineus muscle, and (3) that when those branches become isolated they constitute the accessory obturator nerve.

To analyse these two views and to arrive at a conclusion, a knowledge of the morphology of the pectineus muscle and its innervation is necessary.

THE PECTINEUS MUSCLE :

The human pectineus muscle presents few abnormalities. It is sometimes fused with the adductor longus or occasionally a fasiculus passes from the pectineus to the iliacus or to the obturator externus.

Henle (1871) describes the muscle as constantly arising from two separate slips which unite together before their insertion.

In many mammals as in the horse the muscle is divided into two parts, separated from each other by the pubofemoral ligament — a superficial portion innervated by the anterior crural nerve and regarded as homologous with the human pectineus; and a deep part supplied by the obturator nerve and looked upon as a part of the adductor longus muscle.

In the Loris Lydekkerianus, Ayer (1932) has described the pectineus muscle as consisting of two parts.

Gadow (1882), in his memoir on the hind limb muscles of reptiles, in which he enters also into the question of their homologies in birds and mammals, concludes that the muscle pubi-ischio-femoralis internus of the Urodeles and reptiles is the equivalent of the Pectineus and the iliopsoas muscles of mammals. In general this pubi-ischio-femoralis internus muscle consists of 3 parts, two of which correspond to the pectineus and the third to the Iliopsoas, but considerable differences are met with in the disposition of the muscle and its nerve supply in the different groups of reptiles. In crocodilia the two parts representing the pectineus are innervated by the obturator nerve, and the third part by the anterior crural nerve. In Chelonia one of the first two parts is absent, and the remaining two parts are both supplied by the anterior crural nerve. In Sauria the arrangement is noteworthy. The equivalents of the pectineus are supplied by the anterior crural nerve and that of the Iliopsoas is supplied by a small nerve, which branches off high up from the femoral nerve as seen in the monitor, or

low down from the obturator just before its entry into the obturator foramen, as in the cyclodus.

Bardeen (1907) has described the condition of the muscle in the human embryoes as follows :

> " In an embryo 11 mm. long the anlage of the pectineus is not distinct .... In an embryo 14 mm. long the anlage is closely applied to the pubic blastema and can be followed from the body of the pubis to the blastema of the femur. Into it a nerve branch may be traced from the Femoral nerve. Dorsal to the obturator nerve, in the obturator foramen, is a mass of tissue closely associated with, the anlage of the obturator externus on the one side and with that of the pectineus on the other. No definite nerve branch can be traced into it from the obturator nerve, but it seems not improbable that this represents the anlage of that portion of the pectineus which is supplied by the obturator nerve in many individuals. In an Embryo 20 mm. long the pectineus occupies a position which corresponds with that of the adult muscle. The femoral nerve gives to it a large branch .... I have been unable to trace into it a branch from the obturator nerve ".

Grafenberg (1904) describes the pectineus anlage when it first appears as fused proximally with the iliopsoas anlage.

W. Leche (quoted by Bardeen) has shown that in many mammals, there is, separate from the obturator externus, a muscle which he calls the obturator intermedius, and that in those forms in which the pectineus is supplied by the obturator nerve it is probable that this obturator intermedius has entered into the formation of the anlage of the pectineus.

THE NERVE SUPPLY OF THE PECTINEUS MUSCLE :

The pectineus muscle is supplied by one or both of two morphologically distinct nerves, and when present, always by a third nerve which may supplement either of the other two nerves, or be the sole nerve of supply to the muscle. The first two morphologically distinct nerves are the femoral and obturator nerves derived respectively from the dorsal and ventral divisions of the 2nd, 3rd and 4th lumbar nerves generally. Of these two nerves the femoral supplies the pectineus muscle usually. Occasionally the obturator nerve supplements the femoral in innervating the pectineus muscle and less frequently it may be the only nerve of supply to the muscle. The third nerve, the accessory obturator as it is known, is occasionally met with on one or both sides, and when present invariably supplies the pectineus muscle.

Narayanaswami. T. (1953) describing the nerve supply to the pectineus muscle observes that out of 24 dissections, the accessory obturator nerve was encountered in only 4 instances in all of which it did supply the pectineus muscle, supplementing the innervation of the said muscle by the femoral nerve. In all other instances the Femoral nerve was the only source of nerve supply to the pectineus muscle. No fibres from the obturator nerve could be traced to the pectineus muscle. The innervation of the muscle by the Femoral deserves further comment, as in all the dissections *the main branch to the pectineus muscle issued from the parent trunk well above the inguinal ligament, as an intra-abdominal branch of the femoral*

nerve. In addition to the above branch, in 5 cases, there were two other slender twigs that were given off to the pectineus muscle from the femoral nerve subinguinally, and in 11 cases there was one such subinguinal branch, and no subinguinal branch at all in the other cases. As such the main nerve to the pectineus muscle is a branch from the femoral nerve, given off well above the inguinal ligament and running down parallel and closely applied to the parent trunk, to reach a point a little below the inguinal ligament, where it crosses the floor of the femoral triangle, behind the femoral sheath, to reach the pectineus muscle. A. M. Paterson (1901) also has made a reference to the nerve to the pectineus springing from inside the abdomen, in several cases whence it pursued an independant course beneath the large vessels into the thigh.

It has been observed by the author in his studies (1953) that even in certain animals such as the monkey (Macaca Radiata Radiata), the Loris (Loris Lydekkerianus), the Pig (Sus Cristatus), the Cat (Felis Domestica), the Dog (Canis familiaris) and the Rabbit (Lepus Cuniculus), the nerve to the pectineus muscle was an intra-abdominal (supra-inguinal) branch of the femoral nerve.

Paterson (1901) in a study of 20 sub jects, found the accessory obturator nerve to be present bilaterally in 3 cases, in all of which it was the only nerve of supply to the pectineus muscle, while in the other 17 cases the femoral nerve supplied the muscle. And in not one of the 20 cases did he, in spite of carefully looking for the same, find any branch from the obturator nerve to the pectineus muscle.

E. B. Jamieson (1903) discusses the nerve to pectineus and opines that the pectineus may belong to either the obturator segment or to the femoral segment or to both, and considers that the muscle lies at the transitional zone.

Discussion & Conclusion :

From a consideration of the available information regarding the pectineus muscle and its innervation one can infer that the pectineus muscle consists of at least two elements, (1) a dorsal element, intimately associated with the iliopsoas anlage and supplied by the femoral nerve, and (2) a ventral element from the anlage of the obturator externus, supplied by the obturator nerve. This ventral element would correspond to the obturator intermedius of W. Leche. Of these two elements, the dorsal element is the one most constantly present in man, and the ventral element is present only occasionally in which case the obturator nerve is seen to innervate it.

But the pectineus muscle is anatomically and functionally a member of the obturator group, and it is quite probably so even morphologically. Essentially a flexor and an adductor, the pectineus has more in common with the muscles of the ventral group. Paterson's arguments and conclusions are based on one concession which he has taken for granted and as undisputed. He concedes that all the fibres that are found in the femoral nerve are from the dorsal divisions, i.e., the opposite of the obturator group. Eisler's view is that a few fibres of the ventral group are normally bound up with the dorsal fibres to constitute the femoral nerve, and that such ventral fibres go to innervate the pectineus muscle. This is a very reasonable assumption considering the function and the position of the pectineus muscle, and could be disregarded only if it is conclusively established by maceration techniques or otherwise that the femoral nerve belongs cent per cent

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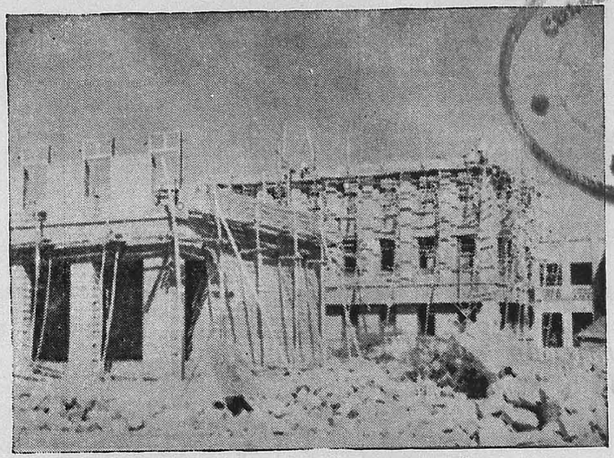

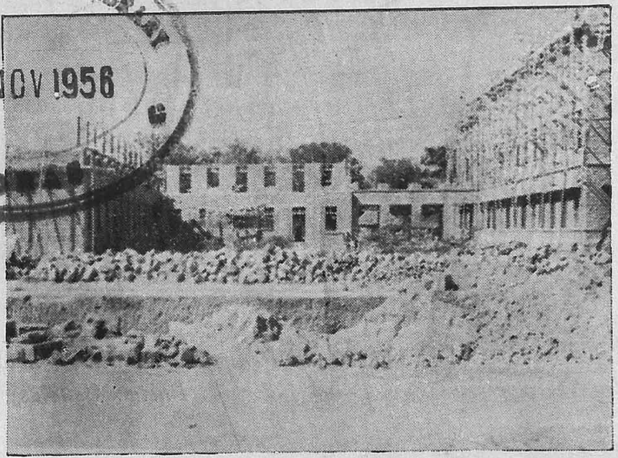

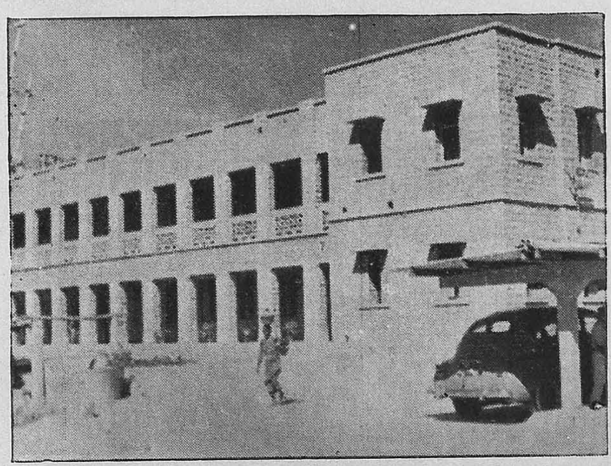

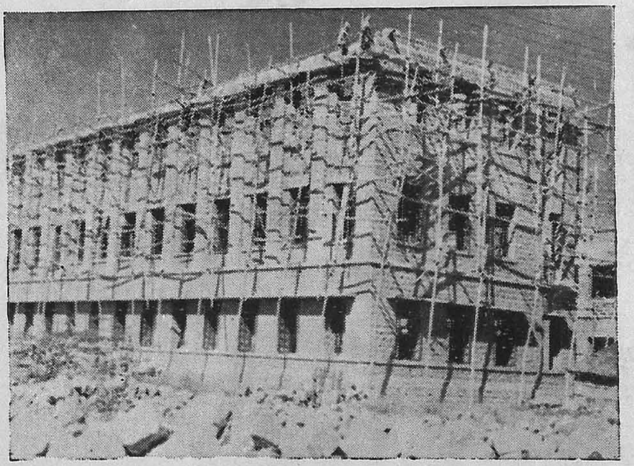

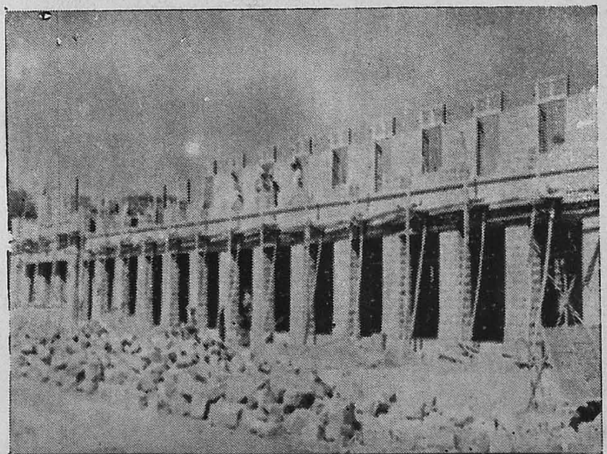

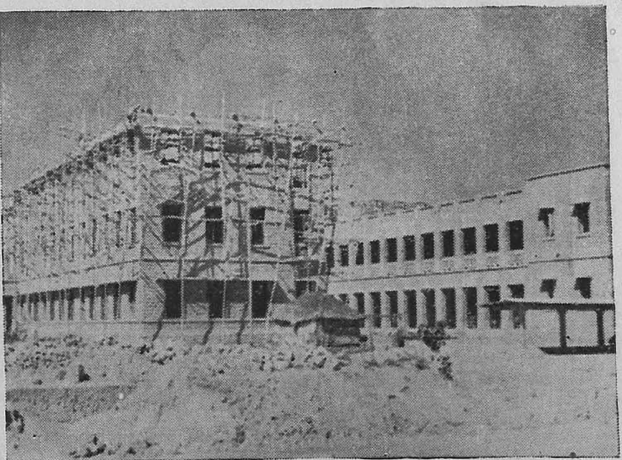

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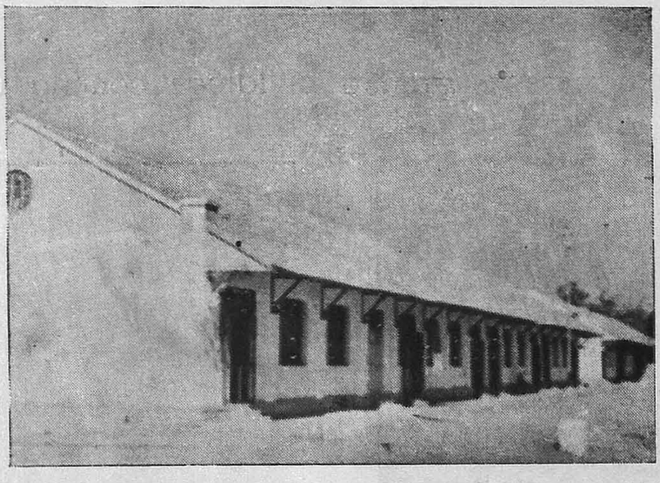

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Photo: Courtesy Dr. V. S. Ramaswami

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to the dorsal group. If Paterson could think of dorsal fibres having an aberrent course via the Accessory Obturator nerve or the branch of the obturator nerve to the iliopsas group, there is no reason why the reverse should not be possible viz., the ventral fibres having an aberrent course via the branches of the Femoral nerve to the pectineus and iliacus muscles.

It does not appear to be unlikely that even the iliacus muscle, which is primarily a flexor, derives its nerve fibres from the ventral divisions via the femoral nerve. The fact that both the iliacus and the pectineus muscles are supplied by the femoral nerve through branches that are given off intrabdominally may be significant and point towards an early separation of the aberrant ventral fibres that have got bundled up with the dorsal ones.

If the fibres could be successfully traced to the ventral and dorsal divisions respectively, then the morphological group to which the nerves to the pectineus and the iliacus would belong could be definitely settled. Similarly the morphological group to which the accessory obturator nerve would belong could also be definitely settled by such methods. But considering the fact that the pectineus muscle which is supplied by the accessory obturator nerve invariably, when it is present, belongs to the flexor and adductor group, and considering the possibility of the ventral fibres having an aberrent course via the intra-abdominal branches of the femoral nerve, the term accessory obturator nerve does not appear to be a misnomer.

REFERENCES

1. AYER, A. A., 1932 — A Comparative study of the Lower limb muscles of Loris Lydekkerianus and Man. Proc. Ind. Sc. Cong.
2. BARDEEN, C. R., 1907 — Development and Variations of the nerves and musculature of the inferior extremity and of the neighbouring regions of the trunk in Man. American Journal of Anatomy, Vol. 6, pp. 259-390.
3. BARDEEN, C. R. & ELTING, A. W., 1901 — A Statistical study of the variations in the formation and position of the Lumbosacral plexus in man. Anat. Anz. Vol. 19, pp. 124-209.
4. EISLER, P., 1892 — Der Plexus Lumbosacralis des Menschen. Halle. M. Niemeyer.
5. GADOW, H. F., 1882 — Beitrage Zur Myologie der hinteren extremitat der Reptilian. Morph. Jharb. 7.
6. HORWITZ, M. T., 1939 — The anatomy of (A) The lumbosacral nerve plexus — its relation to variations of vertebral segmentation, and (B) The posterior nerve plexus.
7. JAMIESON, E. B., 1903 — Anomalies in nerves from Lumbar plexus of foetus. A Anat. Physiol., Vol. 17, pp. 266-285.
8. NARAYANASWAMI, T., 1953 — A Study of the Morphology of the Lumbosarcral Plexus — Thesis for M. Sc. Degree, Madras University.
9. PATERSON, A. M., 1901 — The Pectineus Muscle and its nerve supply. J. Anat. Physiol. Vol. 36.
10. PATTERSON, A. M., 1894 — Origin and distribution of nerves of the lower limb. J. Anat. Physiol, Vol. 28, pp. 84-95, 169-193.

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Malaria and its control

By

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MALARIA is an acute and chronic disease caused by parasites of the genus PLASMODIUM. It is characterised by intermittent fever, secondary anaemia and enlargement of spleen. Four species of PLASMODIUM are known to infect man resulting in four kinds of malarial fevers called Vivax, Falciparum, Quartan and Ovale malaria. Mixed infections also do occur. A typical case of malaria is characterised by a series of pyrexial attacks recurring at definite intervals of 24, 48 or 72 hours.

In India Malaria is a most important Public Health problem. Mostly rural parts are affected. It has been estimated that annually about one million deaths occur in India due to malaria and about 100 million persons suffer from the disease. The estimated economic loss to the country every year amounts to several hundred crores of rupees. Due to ravages of this disease vast extent of fertile areas remain fallow and many natural resources remain unexploited. Outbreaks of malaria commonly occur in big irrigational, hydro-electrical and industrial projects and impede the progress of work. Institution of suitable malaria control measures in such areas is very essential both for the prosperity of the industry, as well as for the well being of the vast labour employed.

Malaria is an insect-borne disease transmitted in nature from man to man by certain species of anopheline mosquito. When such an anopheline mosquito, harobouring the stage of malaria parasities known as "SPOROZOITES" in its salivary glands bites a healthy individual for taking a blood meal, the sporozoites are injected into the body at that time along with the saliva. These sporozoites inhabit the blood system and undergo development in an asexual manner. Each parasite enters a red blood corpuscle and grows at the expense of the corpuscle. They divide into a number of smaller parasites. At a certain stage coinciding with the rise of temperature and shivering, the infected corpuscle ruptures shedding all parasites into the blood stream. These are known as merozoites. Each one of these in turn invades other red blood corpuscles after which they are called trophozoites. This process of schizo-gony is repeated until there is a gradual rise in the body's resistance, gained either naturally or with the aid of drugs.

Among the merozoites which are liberated as above, after several generations, there are some that invade the red blood corpuscles and become differentiated into male and female forms known as gametocytes. No further development of malarial parasite takes place in man. Unless these are taken up by a mosquito from the infected individual they disintegrate in a few days.

When the blood of a person containing gametocytes is ingested by the proper species of mosquito, in the midgut or stomach of the insect, further development takes place. From the male or the microgametocyte thread like filaments (flagella) usually 4 to 6 in number are extruded. The female or the macrogametocyte undergoes a process by which it is transformed into a macrogamete. The flagella are attracted towards this macrogamete. One of the microgametes penetrates the macrogamete and fertilises it. The resulting fertilised ovum is called Zygote. The zygote elongates and becomes motile and is called vermicule or ookinete. It bores its way through the epithelium of the mosquito's stomach and becomes encysted in the tissues outside the epithelium. This is called an oocyst at this stage. The nucleus of the zygote by repeated division produces thousands of minute thread like structures called sporozoites. After complete development, the oocyst ruptures and the sporozoites are set free in the insect's homocele and they are carried to all parts of the body of the mosquito. Some of them invade the cells of the salivary glands and reach the lumen. This mosquito is now infective. When the infected mosquito bites a man, the salivary secretion containing sporozoites is injected into the puncture wound and the parasites invade blood system and behave in the same manner as described before. So it may be seen that the malaria parasite requires two hosts, one, the man, and the other, the mosquito, for completing its life cycle. Mosquito of the genus anopheles is the definitive host and man is the intermediate host. Generally the sexual phase of the life cycle in the mosquito is completed within a period of 10 to 14 days, the average period being 10 to 12 days. This time may vary under different climatic conditions and in different species of mosquitoes. So a mosquito cannot be infective or dangerous upto 10 to 12 days from the time a blood meal containing gametocytes is taken. Malaria parasite ceases to undergo development in mosquito when the temperature remains below 60.8° F. The optimum condition for transmission of the disease may be represented by temperatures 68° to 86° F. with a humidity of 63 percent or more.

The favourable conditions under which transmission of malaria is possible in a particular area are given below :-

1. (a) The prevalence of the species of anopheline mosquito, capable of transmitting malaria (Vector species) in the required numbers.
   (b) Longevity of the life of vectors.
   (c) Increased preference of vectors for human blood.
2. Favourable climatic conditions.
3. Presence of gametocyte carriers in sufficient numbers.
4. Presence of susceptible and non-immune persons.

Repeated infections with malarial parasite lead to an enlargement of the spleen. This can be felt through the wall of the abdomen. The spleen rate is the percentage of children preferably born and bred in the area between the ages of 2 to 10 years. This age group is chosen, because the enlarged spleen gradually recedes at some period after 10 years. The percentage of children with parasites in their blood is called the parasite index. The intensity or amount of malaria prevalent in a particular area can be determined with the help of spleen rate.

Based on the spleen rate malaria prevalence is classified as under :—

1. Spleen rate below 10%
   — Healthy area.
2. Spleen rate between 10 to 25%
   — Moderately endemic area.
3. Spleen rate between 25 to 50%
   — Endemic area.
4. Spleen rate over 50%
   — Hyperendemic area.

Endemic region is one where spleen rate is more or less constant and according to the degree of intensity malaria is said to be endemic or hyperendemic.

CONTROL : Malaria is a local problem widely differing from place to place according to the conditions existing in each place. It is therefore necessary that a detailed malaria survey should be conducted before deciding upon the suitable control measures to be instituted in an area.

Malaria control measures may be classified under two broad heads.

1. Anti-parasitic measures.
2. Antimosquito measure.
   (a) Adulticidal.
   (b) Larvicidal.

1. ANTIPARASITIC MEASURE : By this method malaria cases are treated with drugs like quinine for destroying the malarial parasites in man. The importance of quinine as a specific remedy for malaria was known to people even more than 300 years ago. But in recent years, though various synthetic antimalarial drugs like chloroquine, camoquin, plasmoquine, pentaquine, paludrine, Resochin and Daraprim are introduced, yet quinine continues to occupy the same important place on account of its cheapness, clinical effectiveness and the widespread knowledge of its use and dosage. Quinine is one of the alkaloids obtained from the bark of Cinchona plant. So Cinchona or any of its products is still considered to be very effective in the treatment of malaria.

2. ANTIMOSQUITO MEASURES :

(a) Adulticidal — Destroying adult mosquitoes by sprays etc.

(b) Larvicidal — Destroying mosquitoes in the larval stage using chemicals etc.

Sir Malcolm Watson has pronounced as follows on quinine in the eradication of malaria :—

" Experience has so far shown that the eradication of malaria from a locality by the curative and prophylactic treatment with the drugs at present available is practically impossible. To begin with it is impossible to reach in sufficient time, all the inhabitants of an area or even of a small village. *Moreover, while curative and prophylactic treatment may greatly diminish the morbidity, yet it cannot suppress the parasites in all the carriers.*"

In view of the above, and in view of the fact that mosquito is the chief agent in transmitting malaria, the need for devising and launching suitable and effective methods of control against mosquitoes for their destruction need not be over-emphasized.

I. *Prevention of mosquitoes from feeding on man by personal safeguards.*

(a) The use of repellents such as anti-mosquito cream, citronella oil and dimethyl phthalate etc.

(b) Careful use of mosquito nets.

(c) Proper screening of dwellings to prevent entry of mosquitoes.

II. *Measures employed to destroy adult mosquitoes using sprays etc.*

(*a*) *Spray-killing with pyrethrum extract*:

Pyrethrum extracted from the flowers of the plant Chrysanthenum contains the active principles of pyrethrin which is highly toxic and has got immediate knock down effect upon mosquitoes and on many other insects. This, mixed with kerosene is sprayed as a space spray in 0.1% concentration at the rate of ½ oz. per 1000 c. ft. This measure has to be repeated every week so that mosquitoes in which development of malarial parasite has commenced may be killed, putting a stop to fresh transmission of the disease. This measure was widely employed before the introduction of D. D. T.

(*b*) *D. D. T. Indoor residual spraying* :

Dichloro diphenyl trichlorethane known by the abbreviation D. D. T. is a white crystalline powder, insoluble in water, but dissolves in many organic solvents. It acts as a contact and stomach poison. This is sprayed over surfaces upon which insects like mosquitoes rest or crawl about. The killing effect of this compound lasts for about 6 to 8 weeks or even more in some places depending upon the climatic conditions. D. D. T. can be sprayed as a solution, as an emulsion or as a suspension. In each case it is sprayed in 2.5% or 5% strength. When indoor residual spraying with 5% D. D. T. at the rate of 1 gallon per 4000 sq. ft. is carried out about 50 to 56 m. gms. of D. D. T. are deposited per sq. ft. Such rounds of spraying repeated thrice or four times at intervals of eight weeks during transmission season will completely prevent fresh transmission of malaria.

(*c*) Gammexane — P. 520. :

This is a water dispersible white powder, containing 6·5 % of gamma benzene hexachloride. This is also used as D. D. T. 12 oz. of this are mixed with one gallon of water and the dispersion applied at the rate of ½ gallon per 1000 sq. ft. This gives a deposit of 11 mgms. gamma BHC per sq. ft. and is adequate to give a lethal dose to the mosquitoes.

III. *Larvicidal Measures* :

Before the advent of D.D.T., larvicidal measures were employed in malaria control operations.

(*a*) *Paris green — Cupric aceto arsenite* :

This is an arsenical poison. This is mixed with sand or soap stone powder or with any other similar diluent and dusted over the surface of water where breeding of anopheline mosquitoes occur. The anopheline larva which float on the surface of water and is mainly a surface feeder, swallows the floating particles of parisgreen and dies. This is used in 1.0% strength.

(*b*) *Gammexane* — P. 520 :

This is also used as a larvicide. 2 oz. of this are mixed in one gallon of water and the suspension is applied at the rate of 2 to 4 fluid ozs. per sq. yd. of water surface.

(*c*) *Eliminating or altering the breeding places* :

All water stagnations where mosquito breeding is likely to occur should be got filled up. In some cases water must be drained away by proper canalisation whereby breeding may be prevented.

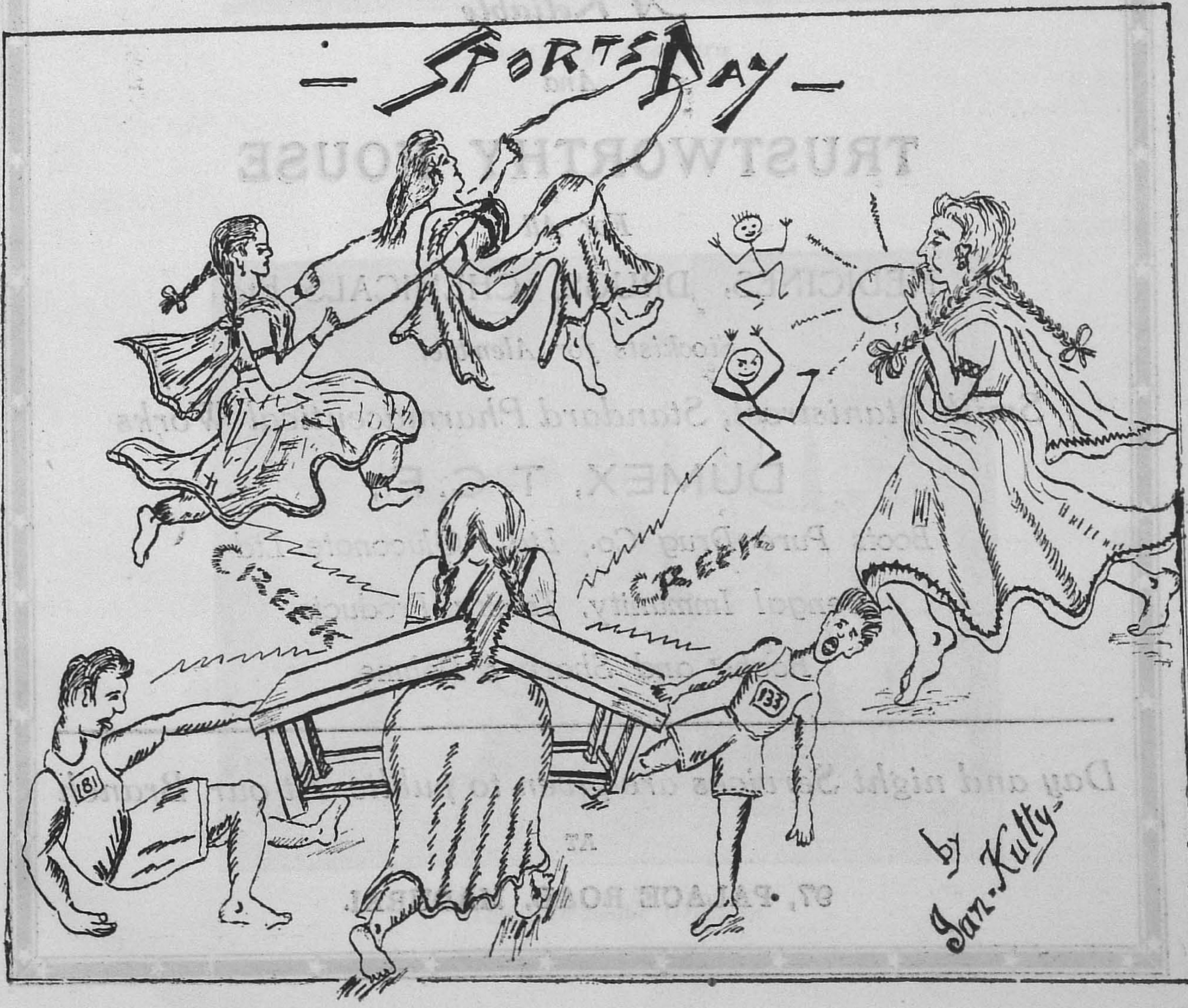
(*d*) *Alteration of salinity* :

This method could be employed in coastal regions. The salinity of the parti-

cular breeding place may be suitably altered by regulating the inflow and outflow into the sea, eliminating the potent carrier.

(*e*) *Biological methods* :

As the larvae of anopheline mosquitoes are surface feeders floating on the surface of water, larvivorous fish which have got similar habits of feeding are introduced into the breeding places. These fish eat away the larvae and thus the vector density is reduced to a considerable extent. The common variety of fish employed for this purpose is gambusia affinis, Haplochilus and Panchax.



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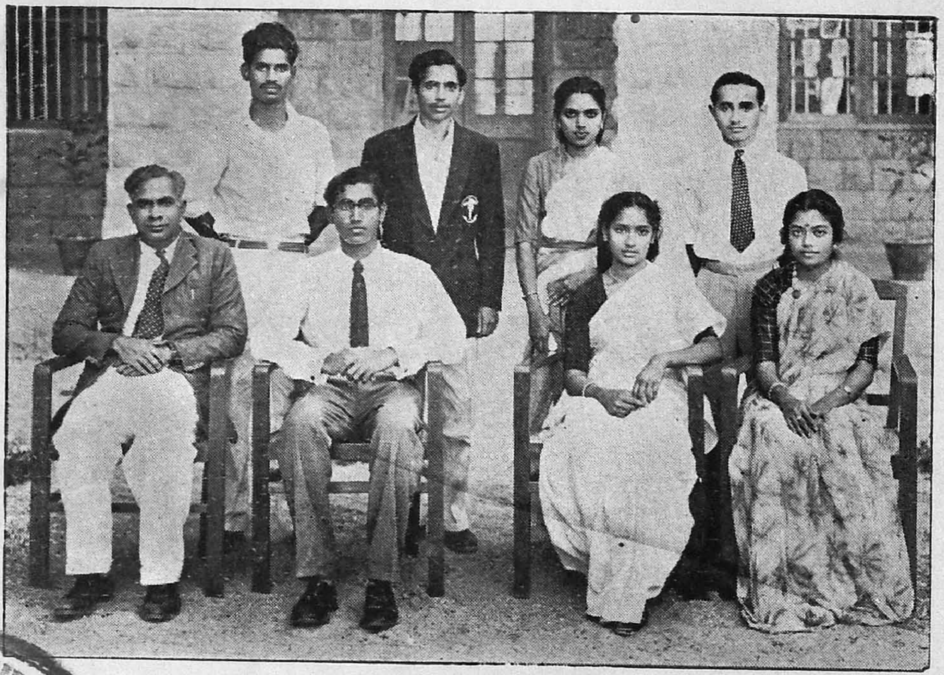

The English Dramatic Group in
" The Change of Heart "

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A Scene from " The Change of Heart "

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Professor — Various Species

(With profound apologies to members of that noble Profession)

By

" SOCRATES "

WELL, there are professors and professors and I propose to describe some of the better known types among them. Any resemblance to any living personality is accidental.

Professors of the old school are as a class, fast disappearing. One can imagine such a professor with his pincenez perching precariously on his nose, his silvery hair standing on end, and his trousers baggy and shapeless — resembling the late Professor Einstein. They did take to the glorious profession of teaching whose aim was to train the younger generation to deal with the problems of life, which they themselves tried hard to avoid by becoming professors. These are the ones known for their encyclopedic knowledge but proverbial absent-mindedness. They are the type who slam their wives and kiss the door goodbye while leaving their homes.

The absent-minded professor invariably walks into the wrong class, and without so much as a look at the students — not that he can recognize them — begins to lecture to the astonishment and amusement of the students. Such a professor never sticks to the subject but wanders away. He is not usually a strict disciplinarian and remains blissfully unconscious of the pranks played on him.

One such professor, going away from home, left a note pinned to his door, which read, " Will be back in 15 minutes." When he got back home, he saw the sign and sat down to wait for himself. After a while he realised who he was and walked in. He took half a ham from the refrigerator, carefully tucked it in bed and he himself got into the cooler and went to sleep.

There is yet another story about a similar professor, on a railway journey, when confronted by the Ticket examiner found that he had lost his ticket. When he was required to give at least the number of his ticket, he discovered to his chagrin that he had noted it down on the back of the ticket itself. On being insisted that he should buy a fresh ticket, he discovered to the amazement of the ticket examiner, that he had forgotten where he was going and exclaimed, " How on earth am I to know where I am going, without my ticket." There are any number of anecdotes about such professors. But the following is an exception :—

A certain wellknown professor in England was waiting at a wayside station to catch the London train. Unexpectedly the non-stop Cornish-Reveira Express halted at the particular station for a few minutes. The professor got into the train just in time. The guard who noted this shouted at him, " Sir, this train is not supposed to stop here." Came the reply, " If the train is not supposed to stop here, I am not supposed to be in it."

Then there is the second category, consisting of a younger generation. Elegantly dressed, they believe that the first impression they create on the students, will remain the lasting impression. They try to inspire awe in the minds of students, not always with success, and this explains the scowling expression on their faces. Three factors go to make what they are; the hairdresser, the tailor and the laundryman. With the high rate of taxes and present day infaltion they are hard pressed to reconcile their nett income with their gross habits. The presence of the fair sex in the class makes all the difference for them. They possibly believe that they would always find one of their choice among them, with an eye to matrimony. Regarding their capacity for teaching, one can do no better than quote G. B. S. "When a man teaches something he does not know, to somebody who has no aptitude for it and gives a certificate of proficiency, the latter has completed the education of a gentleman." This is the type of professor who believes in dicipline, not only in the class-room but also outside. He is of the firm opinion that the best place to read P. G. Wodehouse is outside the class and he has no compunction to throw out any student who thinks otherwise. He struts out of the class, like a peacock, considering it an act of distinction, entitling him to the admiration of the fair sex.

Another kind — a bookworm in his student days and nothing short of a genius, he would have knocked off many prizes in his college-days and invariably possess a Doctorate. Unfortunately he may not be able to express himself clearly and audibly. His lectures sound like incoherent babbling, going beyond the scope of the syllabus. Towards the end of the year he finds himself in a tough spot with more than half the portions remaining to be covered. This results in a number of extra classes attended physically by 25% and mentally by 5% of the students. He usually makes mention of high-sounding books and is not easily unnerved by any thing that the students do.

Of a different kind is the shrewd professor. As soon as he enters the classroom his eyes rove round to see if anybody is sleeping. A story is told about one who one day left a note on the board that he would not be able to engage his classes. A student wiped off the 'C' in 'Classes'. The professor who noted this wiped off the 'l' also, turning the tables on the mischief maker. Another story is that during the temporary absence of a certain professor, the students placed a stuffed gorilla with spectacles and false moustache in the professor's seat. On return the professor saw the occupant of his seat and remarked, to the students, "Well, well, so at last you have found a teacher, suited to your intellectual capacity."

A different variety is the sporting professor. Nothing annoys him. He regards jokes at his expense as compliments and as signs of popularity. A certain professor noticed a carricature of himself on the black-board and questioned the students as to who was responsible for the cartoon. Pat came the reply. "Your parents, sir." And the professor appeared tickled about the answer.

Next comes the professor who deludes himself that he is very humorous. He expects that students will laugh at his jokes and if that is not so, pretends that his jokes were nevertheless appreciated. He is also gullible and is an easy prey to the students. He is closely mimiced and much fun is derived at his expense.

Lastly the witty professor is one who has a smile on his face and a ready joke. His lectures are far from dull and he enlivens them by anecdotes and such tit-bits. One professor asked a student what the fomula HNO_3 represented. The student replied, "I have got it right on the tip of my tongue, sir". "In that case," advised the professor, "You had better spit it out, my boy, it is nitric acid."

Thus it takes all sorts to make this world.

If there is a sixth sense, it is intuition; that summing up of memories and other evidences (experiences) collected by the special-senses and correlated in man's conscience.

* * *

We must bear in mind the difference between thoroughness and efficiency. Thoroughness gathers all the facts but efficiency distinguishes the non-essential data from fundamental facts.

* • • *

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Nature's Poverty

By

SRI. S. RAMAKRISHNAN, M.A.,

Asst. Lecturer in Chemistry.

CHEMISTRY being that branch of Science dealing with the study of matter, the Chemist is always interested and indefatigably engaging himself in unravelling the mysteries of matter and material world. Determination of the ultimate composition of matter and thereby of the material world is a never-ending challenge to the chemist's curiosity and an everlasting invitation to investigation.

Matter is something which occupies space, which has mass and which can be perceived by the senses. The chemical unit of matter is the Atom.

John Dalton who is by some accredited as the Father of Modern Chemistry was the first to advocate the Atomic theory of matter. According to him matter, whether gas, liquid, or solid, is composed of infinitesimal, invisible, indivisible, indestructible and separate particles called 'Atoms'. The word 'Atom' means something indivisible and as such Dalton's main theme was the indivisibility of the atom.

This Daltonian concept of the indivisibility of the atom has been exploded. Modern Research, both fundamental and applied, has shown that atoms are divisible ; they can be smashed into smaller fragments and can even be resolved into what are called the "ultimate particles" or the "fundamental particles" of matter.

Passage of electricity in any form of matter kept at a considerably reduced pressure will reduce matter to some of the ultimate particles. The following are some of the fundamental particles which constitute the Atom and hence matter.

(1) *Electrons* : These are particles of negative electricity, discovered by J. J. Thomson in the Cathode rays in Gessler tube. The mass of the electron is 1/1836 of a Hydrogen Nucleus. Electrons have the properties of 'wave' also. So it is not strictly correct to describe them as 'particles'. They are, say Particle-waves.

(2) *Protons* : If the pressure in the Gessler tube is very low and if a perforated disc is used as the Cathode, rays called Canal rays are produced. These rays are shown to be made of positively charged particles called 'Protons' by Goldstein. Lord Rutherford also demonstrated the existence of Protons when he bombarded neutrons wth alpha rays. The Hydrogen Nucleus is a Proton.

(3) *Neutrons* : These are particles having no electrical charge, but have more or less the same mass as protons. On Rutherford's suggestion, Chadwick demonstrated their existence by hitting Beryllium metal with alpha rays.

The neutrons and protons constitute the nucleus of the atom and are together called the Nucleons. The nucleus of an atom is enveloped by a swarm of electrons which revolve in well-defined orbits like planets around the Sun.

(4) *Positrons* : These are positive electrons detected by Anderson in the atomic havoc created in Wilson Cloud Chamber, by the Cosmic Rays.

(5) *Nutrino* : To satisfy Quantum Mechanics and to serve the Laws of Conservation of Angular Momentum, W. Pauli suggested the existence of Nutrino. These have not been detected directly, but have been proved to exist by indirect experiments for properties.

(6) *Mesons* : These were found out by Anderson and Neddermeyer in the atomic debries produced by Cosmic Rays. These particles are said to be the 'nuclear glue' binding together the nucleons. Heavier variety produced by the Cosmic radiation are the 'pi' mesons and the lighter variety formed when the heavier ones decayed are the 'mu' mesons. There are also the Kapa mesons, Tau mesons etc. Recently, Ganapathi Srikantia of India is said to have found out 'either a new type of meson or a new type of decay of the meson' and to have contributed an explanation for the 'possible vital link in the riddle of what holds the atom nucleus together'

(7) *V particles* : These were observed in the Cloud chamber by Rochester and Butler in 1948. These are said to be more massive than Protons.

The Antiprotons, Antineutrons etc., are other similar particles. The number of the fundamental particles totals to 21 at last count......It is not known how many more will be added to the list.

Harkins has calculated that if all matter making up the earth were collapsed down to the ultimate particles, the diameter of the present world would shrink from 8,000 miles to 1080 feet with no shrinkage in weight. Thus, it could be imagined that with all her bewildering complexity, Nature ultimately possesses only these '*particles*'. As such, Emerson rightly remarks "And yet so poor is Nature with all her craft that from beginning to end of the universe, she is but 'one' stuff......to serve up all her dream-like variety".

Those brain waves . . . .

By

E. GUNASEELEN, II M.B.B.S

TELL your inquisitive patient that his brain is a multiple living battery. He may not get a shock at it but he is sure to blink at you out of his great surprise. Liugi Galvani, when he discovered that a mild static electric current causes contraction of the frog's muscle would hardly have predicted that his discovery could lead to some important application of bioelectricity in clinical medicine. He lived in an era when several electrical phenomena were in the darkness of ignorance, when devices to measure minute fractions of volts were at bay. As years rolled by, more and more accurate instruments were improvised so that remote fractions of electrical units could be measured. These are surprisingly beneficial to our day-to-day life in as much as potential changes occurring in the living cells especially of the vital organs such as brain, heart, etc. could be detected which are capable of throwing some light on the functions of the vital systems in the human body.

For a long time, work in bioelectricity has been confined only to the sphere of pure research until Berger discovered that the cerebral cortex is in a state of rhythmical electrical activity which could be recorded and some information obtained as to its function. This paved the way for further discoveries in this field. Later Adrian and Mathews have done extensive research which have proved as guide-posts to the clinician.

The principle underlying the electrical phenomena in the living cell shall be outlined thus. As we know, every cell is ensheathed in a cell membrane which is for all practical purposes semipermeable permitting free exchange of water but behaving selectively to solutes. Some solutes pass the membrane barrier readily while others do not. This behaviour of the cell membrane is responsible for the disparity in the ionic concentrations and hence the electrical changes within and without the cell leading to the development of a potential difference. This potential difference could be made to produce a current provided a suitable circuit is present. A potential difference is created not only between positive and negative charges but also between negative charges of different intensities. This conception of the cell membrane having different charges on both sides is the blue point for the widely accepted explanation of the cell activity.

Taking for example, a nerve cell when it is at rest, its membrane is positively charged on the outside and negatively charged on the inside indicating that the membrane is keeping the ions on both sides separated. Since no electrical activity is going on, we say the area is inactive. When an impulse reaches any given point in the fibre, penetration of the membrane takes place and the area becomes electrically active. Its negative and positive charges come together and

neutralise one another. Through the neutral gap thus set up, ions from the next hitherto inactive place along the fibre penetrate making the outersurface of this second area permeable. It, in its turn affects a third place still farther along the nerve fibre until the impulse completes its course.

The waves or rhythms generated by the activity of the cerebral cortex, composed of several thousands of millions of nerve cells whose axons constitute the afferent and efferent systems linked with sub-cortical regions, representing the highest centre for most of the activities of the body are of particular importance to the neurologists. The cortex by virtue of its lying just beneath the top of the skull is the most accessible part of the brain and hence it is possible to get quite close to the cortex by attaching electrodes to the scalp. Such records could be obtained by employing a vacuum tube amplifier which amplifies these almost insignificant electrical rhythms several millions of times. These recordings are called Electroencephalograms (E.E.G.) The scalp is moistened with some salt solution and electrodes are applied to it. The amplified voltages pass through a sensitive electromagnet which works a pen to write on a moving tape.

There is yet another method which makes use of a cathode ray oscillograph in which the magnified voltage is directed against a beam of electrons moving in a cathode ray tube. The beam is thrown on a flourescent screen where it appears as a quivering luminous line. This line alters in rhythm with alteration of the brain activity. The length and the height of the line waves are the measures of the electrical activity of the brain.

Three principal rhythms are recognised in normal E. E. G. They are as follows :—

Rhythms.	*Frequency in cycles / Sec.*	*Voltage in micro volts.*	*Chief area of brain producing the rhythm.*
Alpha	8 — 12	10 — 100	Occipital lobe.
Beta	18 — 35	50	Frontal lobe and Precentral cortex.
Delta	1 — 4 or	less 20 — 200	——

Apart from these there are a few other types of rhythms of rare occurrence namely gamma rhythm, 5-40 cycles/sec. recordable from Frontal regions and the abnormal theta rhythm of frequency 6 cycles/sec.

The alpha waves appear with the subject's eyes closed and are abolished by mental or visual effort. Any attempt of the subject to fix the eyes upon any object results in the suppression of the waves. The cortical cells when not engaged in any specific task discharge synchronously. The theta rhythm is considered normal, if the voltage does not rise above 50 micro volts. This rhythm is discharged almost steadily from the sensory-motor cortex.

The delta waves could rarely be recorded in normal persons while awake ; but they certainly make their appearance during sleep. Their presence in normal adults when awake is indicative of pathological conditions. These waves vary according to age (reaching the final deve-

INAUGURAL ADDRESS BY DR. P. V. CHERIAN

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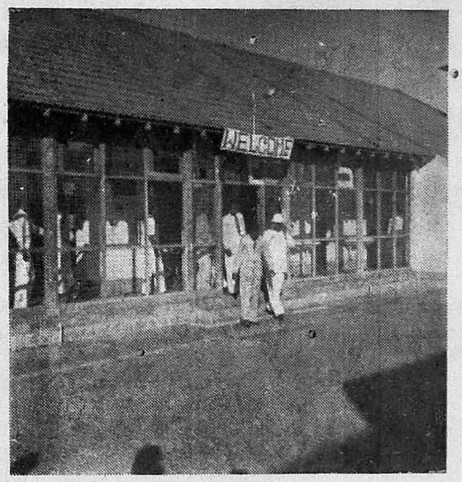

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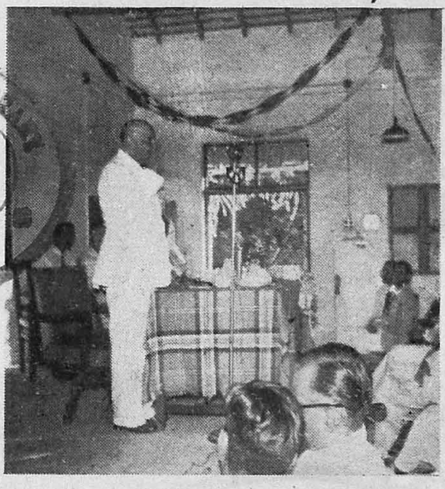

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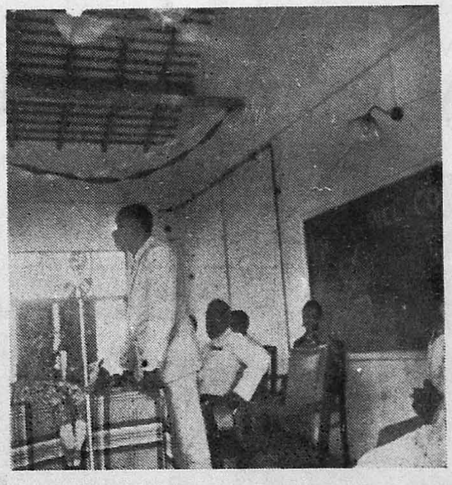

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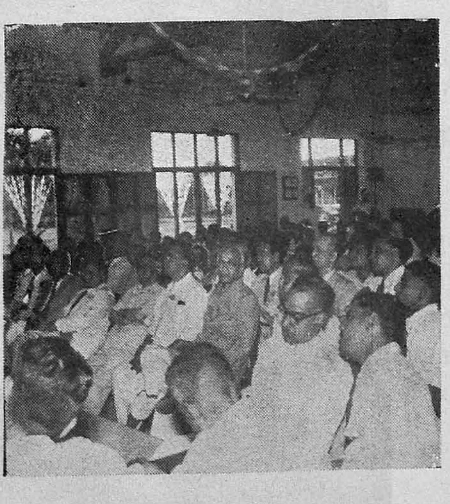

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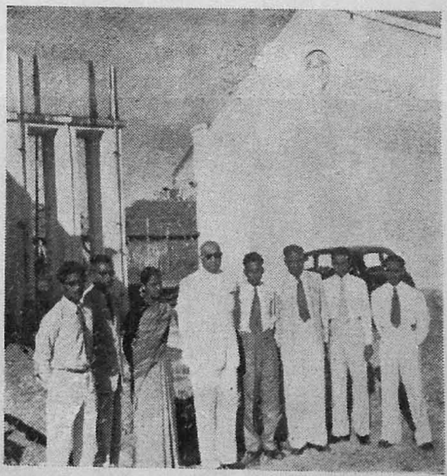

The Farewell

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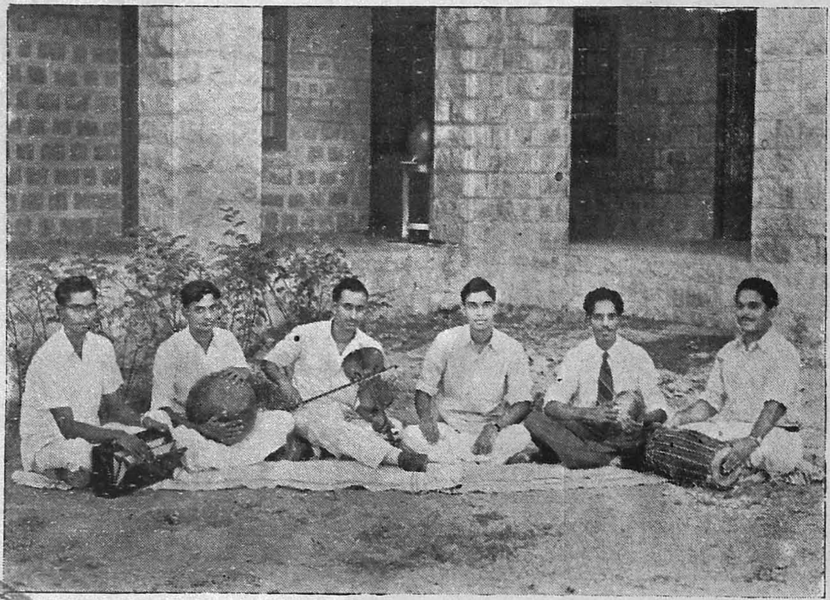

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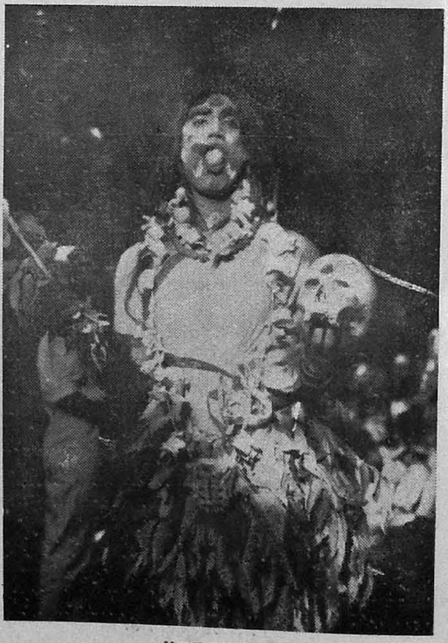
The Lunch

The Fancy Dress Competitors with the Judges.



" KALI "

(Photos by: Mahendran*)*

lopment about adolescence) the state of consciousness and of mental activity.

The interpretation of these waves produced during health or disease is a task requiring utmost skill and ripe experience which should always be combined with the clinical history especially in epilepsy. In some organic brain lesions, mental disorders, head injuries and above all, in epilepsy abnormal wave patterns occur in a record of E.E.G. Characteristic abnormalities of rhythm occur in 80% of epileptic subjects and in about 10% of clinically normal patients. These dysrhythmas, as they are called, occur in epilepsy during fits and in the intervals between fits.

Sometimes it is essential to evoke potentials to obtain records in response to certain stimulations which help clinical findings. Chiefly three procedures are followed in this connection.

1. Over ventilation is capable of producing high voltage delta rhythm and sometimes theta activity.

2. In another method a powerful source of light is applied to the eyes which gives a variety of responses (photic stimulation).

3. Certain drugs such as leptazol is also capable of producing characteristic rhythms which help diagnose certain forms of epilepsy.

The E.E.G. records are used as guides for distinguishing one form of epilepsy from another, for assessing focal epileptogenic regions and for the differentiation of organic from psychologically affected cases. But their usefulness in the diagnosis of epilepsy has been well established beyond all doubts.

As mentioned earlier dysrhythmias of E.E.G. occur during fits and in the intervals between fits in epilepsy. Records obtained during fits show chiefly (i) very rapid dysrhythmias usually associated with 'Grandmal' and convulsion (ii) waves of various patterns associated with what is known as psychomotor epilepsy (iii) a rhythm consisting of alternating fast and slow waves, the "spike and wave complex" characteristic of juvenile petitmal.

In the Intervals between attacks, E.E.G. records may show (i) a continuous dysrhythmia over an extensive region (ii) local dysrhythmia indicating some definite localised lesion (iii) recurrent dysrhythmias very transient in nature indicating epileptic disturbances in the brain matter. In symptomatic epilepsy the focus of impulse formation may be confined to a particular region but in some cases bilateral dysrhythmias from the frontal areas may be present.

The interpretation and a classification of electroencephalograms are not universal and more and more new techniques are being introduced to get the best out of these tell-tale brain waves.

BIBLIOGRAPHY

1. Diseases of the Nervous System— "Walshe".
2. Physiological principles of Medical Practice — "Best & Taylor"
3. Applied Physiology — "Samson Wright".

Man and animal

By

C. DHANASEKARAPANDIAN, II M.B.B.S., Class.

INTRODUCTION :

WE, the human beings are proud to say, "Man is unique in many respects". Through a long period of hundreds of millions of years, he has reached this present level from the unicellular organism — amoeba. His fight with big animals is over. But yet he is struggling with viruses and their companions.

PHYSICAL FEATURES THAT DIFFERENTIATE MAN FROM OTHER ANIMALS :—

Man's hand and foot are his own. He has a well developed chin and has visible hair on only certain parts of his body. He has the power of speech, writing, imagination and reasoning. It is noteworthy that man has an erect posture unlike the animals.

ERECT ATTITUDE OF MAN :—

All the anatomists agree that the mechanics of the human body are set for an erect attitude. In all animals and babies, a straight line drawn from the centre of gravity of the body falls in front of the hip joints. So the body drops in front of their hip, until it is supported by the forelimbs. But in man, the vertebral column is constituted in such a manner that the line drawn from the centre of gravity of the body falls behind the hip joints. The tendancy of the trunk is always to roll backwards on the heads of the femora which is prevented by the powerful and strong connective tissue of the human body namely the Ilio femoral ligament which is present only in man.

By the erect posture the forelimbs of man are freed, which is a great advantage to him. One may say that the birds also have free forelimbs. But the forelimbs of aves are specialised for flying. The hands of birds cannot be compared with the hands of a surgeon, dissector, pointer, harmonist, telephone operator or a scientist. The hands are gifts of man. None of digits are lost during evolution but their movements have become complex and purposeful and their ends serve as one of the most sensitive areas of the body.

However by this erect attitude we have lost something. We cannot run as fast as a deer. Our speed of locomotion has gone.

The woman suffers much. Sometimes the obstacles in the labour become so great that the surgeon brings out the foetus by 'Caesarian sections'.

STATE OF MAN ON EARTH :—

Man is man, not because he has a chin or walks erect but he possesses the brain of man. The bones, teeth, muscles and intestines of man are not in any way superior to those of animals. They are inferior to them rather. When we come to the nervous system there lies the difference between man and other animals. Even

there, no difference is seen in spinal cord. The lower parts of brain, namely, medulla and pons which govern circulation, respiration and digestion, are the same. Still higher up the mid brain which controls sight and balance of the body, shows nothing noteworthy. When we come to the cerebrum, we realise the difference. The tremendous development of certain areas of cerebral cortex, called ASSOCIATION AREAS, draws our attention. In these association areas, various impressions provided by the different senses such as those of sight and hearing are combined and interpreted so as to form a meaningful pattern. These areas of cortex are concerned with the highest faculties of man —memory, imagination and reasoning.

PHYSICAL HANDICAPS OF MAN AND THE COMPENSATION BY HIS BRAIN :—

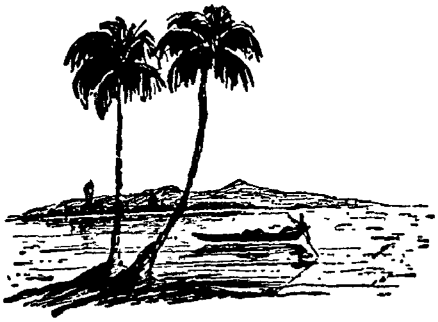
A gorilla could dispose half a dozen men in a combat but a single riffle bullet from a human index finger will put an end to the animal. Man's vision is not so keen as that of many mammals and birds, yet powerful binoculars and electron microscope are with him. Man has no wings but he is capable of flying in jets at tremendous speeds.

The mind of man multiplies its capacities by geometrical proportions. Mind is imagination. Imagination is from association areas. So, 'Association Areas' is the unique gift that man has got and by this gift he differentiates himself from all other living organisms on this earth.

"In the world there is nothing great but Man,

In Man there is nothing great but Mind."

— *William Hamilton.*



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MADRAS

With malice to none

By

FRANK

(Any reproduction of this poem in part or whole should not be done without the permission of the " House of Lords ".)

If this falls into the hands of a poet laureate
I crave of him indulgence for the metre I create
And if these words cause angry murmur
I only pray that they be read in humour.

Wanted not by industrious juniors
Sought not by joyous seniors
Here we lie unfortunate additionals
Who took Anatomy, Physiology as optionals.

Getting of everything a minor share
All eyes give a ready stare
So humbly we look around
For our footing is on feeble ground.

If at sports we chalk a win
It is but a grievous sin
Considered that we remain only to pay
Tution fees, haunt games field and remain gay.

Life's like that for us additionals
Who took to subjects as optionals
But remember when these hurdles are past
He who laughs best, laughs last.

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Do you know?

1. Forty degrees is the only point at which the Centigrade and Fahrenheit thermometers coincide exactly.

2. 3 / 10,000,000,000 of the sun's energy reaches the earth. The loss of another five percent would destroy all human life.

3. Blood is six times as thick as water.

4. The human heart stops for 1/6 of a second between beats. As a result your heart stands still for a period equal to 1/6 of your lifetime.

5. Every word spoken requires the use of seventy-two muscles.

6. The clam, crab, snail and worm are nature's aristocrats. They all have blue blood.

7. The origin of the phrase "mad as a hatter" comes from the fact that mercury is used in the making of felt hats. The poison resulting from the use of mercury over a period of years evidently caused the victim's muscles to jerk violently and involuntarily. The hatter's friends would draw false conclusions from these acts.

8. "Cool as a cucumber" is a mislead ing term. The inside of a cucumber is often twenty degrees hotter than the surrounding air.

9. When pocket watches were first invented, they were so heavy that owners hired pages to carry them.

10. The term IDIOT originally meant a private citizen who did not hold office.

11. A piece of human skin as large as a postage stamp contains 3,000,000 cells, one yard of blood vessels, 4 yards of nerves, 100 sweat glands, 15 oil glands and 25 nerve ends.

12. A wink is equal in duration to 3/10th second.

13. The grass-hopper has five eyes.

14. A chicken grows more than 8,000 feathers.

15. Straight hair is circular, but curly hair is flat.

16. Dogs have sweat glands only on the soles of their feet.

17. The hedgehog and the groundhog are not hogs at all.

18. It is impossible to sneeze with your eyes open.

19. A woman breathes the third faster than a man.

20. Magnesium weighs more after it has been burnt. The ashes are heavier than the metal.

21. Kangaroo mean "I don't know". A native was asked the animal's name and replied "Kan ga roo".

22. Women's vocal chords are shorter than those of the male. They are higher pitched and require less air to agitate. As a result women can talk more with less effort. No wonder !

The farmhouse by the stream

(Short Story)

By

FRANCIS J. RAYEN, I. M.B.B.S.

"NO" the housekeeper said; she was sorry but the superintendent was not back from Madras. He ought to be arriving soon. The Inspector said he would wait in the garden.

It was the weather that kept him out of doors. He had wished to see his boss about the death of Sheila, a servant girl. Incidentally the body was found floating in that stream by his Superintendent's house. But death was not due to drowning for the neck was twisted ; hence..... strangling.

As he looked across the stream the Inspector saw a figure, unidentifiable in the failing light emerging from the stable. Yes, it was Sweeney. Sweeney the retired civil servant, Sweeney the tenant of the farmhouse, Sweeney the widower, Sweeney the pathetic, Sweeney the bore, Sweeney, who now had been fussing about the horse he bought that morning.

In a few weeks the Inspector too would be retiring. He was glad. No more nocturnal callers or disturbers of peace.

The sound of a car roused him. He opened the door and let the superintendent out. "Here we are, Sir" he said, with a cheerfulness he was far from feeling. "Conference go on well, sir."

"Oh ! the conference, usual stuff. Ruddy awful hotel anyway"

"What time did you leave town, Sir"

"About two O'clock."

"Hah ! Quick going. Wanna rest Sir ? I got a homicide case".

"No, let's stroll".

As they came to the farmhouse, the Inspector pointed at it ; "that's where it happened sir, almost on your own doorstep. It's the servant girl Sheila. Strangled this afternoon and thrown into the stream".

The superintendent nodded "yes, I've visited Sweeney only twice. It was mostly the other way about. I remember the girl."

"I dare say she was striking enough."

"Yes" the superintendent replied, "A very well known track. Has Sweeney still got his nephew with him ?"

"Yes Sir" replied the Inspector, "He and Sweeney are the prime suspects."

"Well Sir" continued the Inspector, "It's like this. Doctor Ram says it could only have happened between one and three in the afternoon. The body was found at 5 O'clock by Sweeney. They had an early lunch and after that both of them never set their eyes on the girl.

About two O'clock Sweeney rode to your house, to look you up."

"Yes he told he bought a horse. He has been bragging for long enough. Sorry for the interruption, carry on".

"Well Sir, Sweeney did not find you, so he rode back and arrived home at quarter to three. From there on he didn't see his nephew and the nephew did'nt see him."

"And finger prints" interrogated the Superintendent.

"Only Sweeney's, the girl's and the nephew's so far. But then if it was an outsider he wouldn't have needed to leave any prints. All he'd have to do if the girl was waiting for him, was to go through an open gate, and an open door. As to footmarks this ground is as hard as brass".

They had reached the stream and tied to a tree was Sweeney's dinghy, which was used on his visits to the Superintendent's house.

"Not an easy case. You'll be looking out for Sheila's boy friend, till then, you will not commit yourself." He looked up when there was no reply. The Inspector was star gazing. "Inspector, ! I said........."

But it was a long while before the Inspector replied "I know who did it. It is like the case we had two weeks ago."

The superintendent nodded "I remember."

They exchanged smiles. They understood each other.

The superintendent stirred "Yes, I am glad it's over. Bye the bye Inspector, what did I do? leave my passport in the farmhouse".

"You assumed, I said RODE in fact I did — when you ought to have assumed I was saying ROWED."

The superintendent shook his head "Yes now I see. I wouldn't have known of Sweeney's precious horse if I was at the conference at lunch time. Well, we have reached the end."

"There's no case against anyone else sir".

"Thanks very much but no. Now Sheila's dead and there is nobody......". He stopped there grimaced "I am too much of coward, so if you don't mind Inspector........".

A mile and a half away the Inspector stopped his car to light a cigarette. He did not look back and even in the farmhouse nobody heard the shot. No one saw across the dark stream the new anonymous shadow under the banyan tree. The superintendent had shot himself. The world was rid of a murderer and the police of an ....officer.

The Horizon

(Short Story)

By

C. THANGARAJ, I M. B. B. S.

THE milky moon proudly flooded the raging sea. Being seated on a stone, I was roaming amidst the imaginary world, inherited by poets, dramatists and so on. After applying my mind into deep imagination I recovered and fixed my eyes upon the roaring sea. A feathery breeze, missing not to kiss my bosom, motioned with a hissing noise and I wished it, in return, a long life. With a mingled feeling of wonder and fondness I was admiring the nature. Indeed ! nature is wonderful. In the amidst of such wonderful creations man is really inclined to poetic inspirations. A sudden flash of fancy reminded me of one poet's saying, " how sweet the moonlight sleeps upon this bank ". As my mind was tossing in literary ocean, some lovely sounds creeped in my ears.

" Look here, my dear, how transcendently the nature wraps the world with its manifold artistic ornaments ? How nicely the setting sun flooded the lands with its dazzling crimson rays ? but now everything we see are purely milky. What a change ! " A meaningful and charming laughter followed the said discourse. And I heard subsequently,

" You, my petty but pretty pet, are not only endowed with fascinating cheeks but also with, apart from their rosy appearance, eloquent and enchanting lips. Prema ! in this world, there is no a single soul, which is capable of making our intimacy still more closer, than this nature. Nature would definitely come and guide in our way. Prema !........".

A hearty mirthful laughter lasted for a few seconds.

I, the short-time philosopher, putting an end to my imaginations and acclamations, sharpened my ears and heartened to the conversation, throwing my searchful eyes in seek of the said conversationalists.

Though there was no more taling for a while, I caught sight of a pair of picturesque couple. At the first sight I was doubtful whether I was seeing the couple or all was imaginary. ' Heaven walks on earth ', my lips moved involuntarily. Her magnificent features deeply impressed upon my heart. Her raven hair hung recklessly. A white plain saree loosely clothed her form. Around her neck no diamond shone, upon her dress no pearls were seen. And yet she was extraordinarily beautiful. The man near her lap had not disappointed me. His gentle form and his noble appearance aroused a feeling of complete satisfaction for being the match of that heavenly beauty.

The woman — never had I seen such a well built lady so luciously curved, so exotically caparisoned. With ever increasing curiosity I was gazing at the outstanding couple. If John Ruskin were to be

alive I would have made him convinced to change his views, that is :—

"Remember that the most beautiful things in the world are the most useless".

Is she not useful to his admirations ?

I was brought back to the scene by a loud but lovely shock of prolonged laughter.

I, the observer, with an awe-striken mind listened to their conversation by which I was impressed that she possessed. an exhaustible fund of sparkling wit and humour. Unconsciously but automatically I was dragged to the literary world, that "She is fair, fairer than that world of wonderous virtues".

"How sweet the moon shines ?" Her lips moved. She resumed, "How clear and spotless the moon is ? Is it not ?" "No my Prema", he interposed, "I was already in possession of a moon of my own, which is unrivalled and unparallelled".

Fixing his eager eyes upon her countenance, he exclaimed, "Oh ! your flowery cheeks have become crimson, you are blushed".

"How enchantingly the horizon adorns the blue sky. It is fine, fascinating, indeed, the horizon looks nearer ! Is'nt it my dear" she interrogated.

"Yes", he continued, "The horizon appears to be very near to us like what our love-destination seems to be. To approach the destination, it needs an unending journey of trouble and risk".

With sharpened ears and with gazing look I persisted my investigation. The conversation was endless. Not due to my reluctance to witness such a scene but because of my fancy being dragged into a state of philosophy, I quit the spot.

On my way home my fanciful imagination was fanned on, for which the not-looked-for incident was the poor object. The highly matured and intellectually flavoured exchange of words that the unforgettable couples thrown between them were haunting in my mind.

I, it was not an exaggeration, was on pins and needles to meet the same set of witty individuals and to hear their romantic resonance. The day moved on.

The next morning, with loaded anxiety I reached the shore, where not commonly I observed some sort of stillness all around. No breeze, no noise at all. I was naturally horror-striken but summing up my courage I moved with an aim of encountering that eccentric pair. To my wonder I heard some peculiar mourning sound and subsequently I caught sight of an unimaginable scene.

Like a culprit nearing a cruel king, I, bearing unbearable fears, aneared the spot, where a dead but lovely female body was owned by an awe-striken weeping young man. It took no great time to understand the happenings. No sooner I acquired ample identifications for the afore-said victims than I was terribly upset. I was speechless for a while. After gaining my consciousness I starred at the disaster, where to my astonishment the motionless and breathless masculine body, denoted that he, too, was no more.

Doubling the sequence of events that caused such a disaster, I ventured to inspect the deads. Fortunately I perceived a card in the form clutch of the

woman's hand. My impatient lips involuntarily uttered the contents. The card bore on its top 'WEDDING'.

The fancy galloped and assimilated adequate ideas to imagine the circumstances, which would have led them to this end. I wondered at the strange and heavenly love they possessed. They even risked their valuable lives for the sake of their inseparable intimacy.

My wondering eyes rendered their glance to the thundering ocean. The rising tides aroused a roaring noise like the uproar of wild tigers. I wistfully glanced at the adorning horizon. The laughing beauty of the horizon seemed to make at the deads nearby. My lips unknowingly murmured "The horizon !, The horizon".

HEARD IN THE VIVA VOCE

"Electric volts are named after Voltaire who invented electricity."

"Karl Marx is one of the Marx Brothers."

"Alma Mater was a famous operasinger."

"A Scotland yard measures 2 feet 10 inches."

"A doggerel is a little dog."

"Monsoon is French for mister."

"History calls people Roman because they never stayed long in one place."

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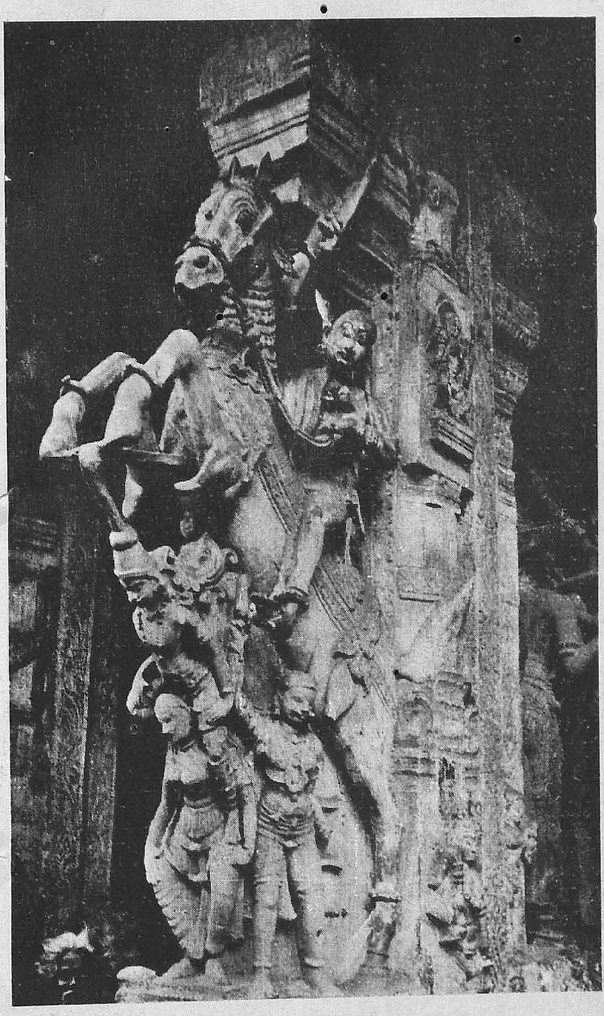
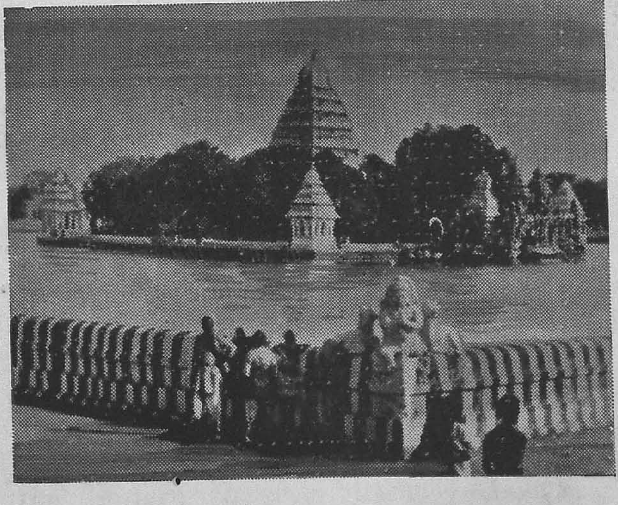
Glories of Madurai



Monolith at the Pudumandapam

Thirumalai Naicker Palace



Mariamman Teppakulam

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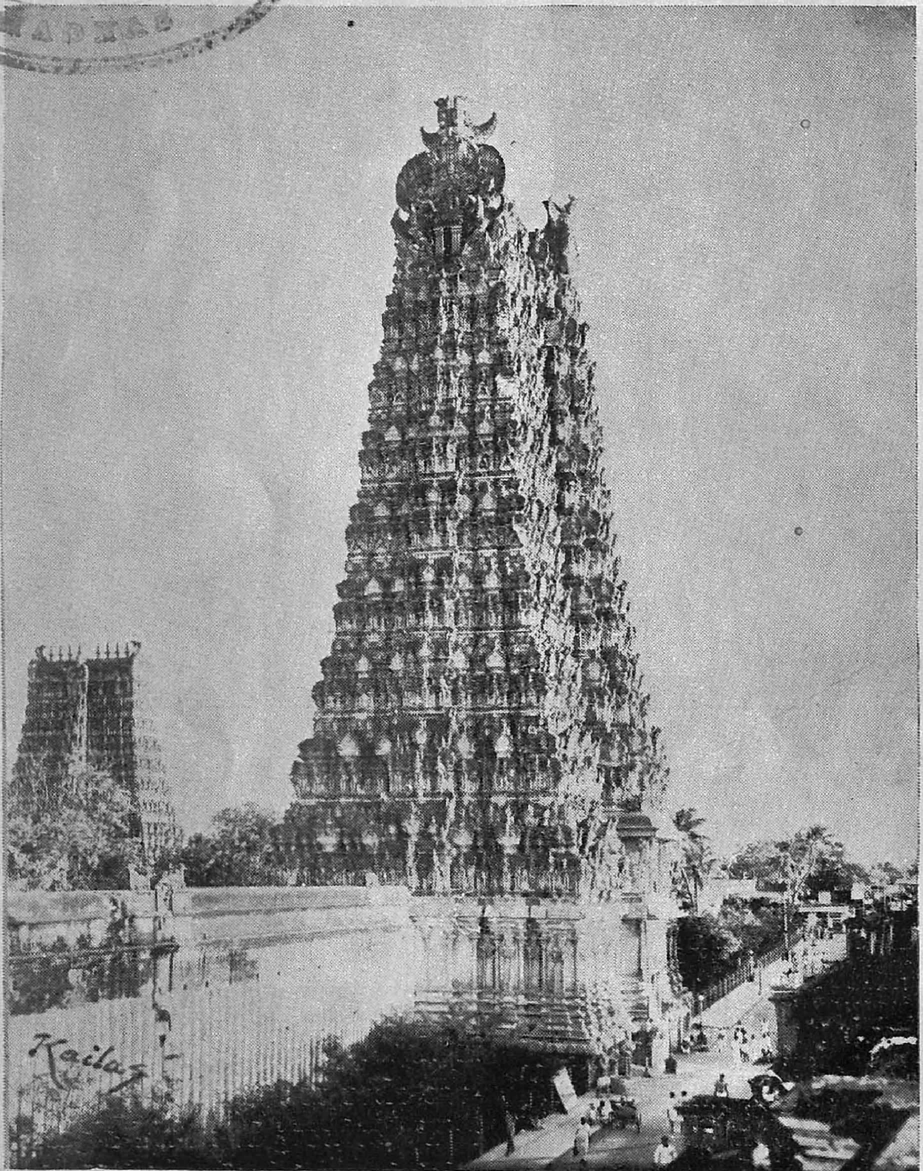


One of the " Majestic Towers " of Sri Meenakshi Temple, which lends charm to the " Temple City"—Madurai

15 NOV 1956

The Treasure-house of Art & Culture

By

R. RETHINAM, I M.B.B.S.

MADURAI claims many things for itself. It is the art treasure of South India. Like other ancient cities of South India, it has survived the ravages of time and has escaped spoilation at the hands of Muslim invaders.

The city has another claim to fame. It has been the focal centre of Dravidian culture for more than two thousand years. European scholars have often referred to Madurai as the Athens of South India and the title is not without justification.

Further it was the seat of Tamil Academy and the Tamil Sangam which produced many Tamil poets and scholars of whom Thiruvalluvar and Kambar have been most outstanding. The word Madurai means — sweetness. There is however, a tradition that Siva was so pleased with the beauty of the city that He sprinkled Nectar (Madhu) over it, hence the name Madurai.

The medieval period (1559—1781) was the most glorious period in the history of Madurai and the city is justly famous as the seat of the Naiks. They brought peace and prosperity for a period of 200 years. It was during this period that the modern city of Madurai was planned. The credit for these remarkable achievements must go to Viswanatha Naik, the first and the greatest of the distinguished rulers and Thirumalai Naik, the better known to posterity on account of the famous palace and other pieces of architecture erected by him.

The great temple stands in the centre of the city with streets all round it and also radiating from its sides. The outer walls of the temple form a rectangle 847′ by 792′. The innermost shrines of Goddess Meenakshi and Lord Sundareswarar were built during the reign of the Pandia Kings. In 1310 the outermost walls were almost razed to the ground level during the Muslim invasion of Madurai by Malik Kafur. After that, the general plan of this temple was laid down by Viswanatha Naik in 1560 and the outermost walls were commenced during that time.

The architecture is almost purely Dravidian — the pyramidal towers of colossal height dominating the surrounding landscape for miles around.

The four outer towers or "Gopurams" begin with door posts of single stars 60 ft. height and rises in tapering layers carved with rows of gods and goddesses, animals of various kind and mythological figures.

The temple itself consists of nine towers. Of these nine, the four outer ones are the most significant. They differ fundamentally in their ornamentations, height, etc. The Western tower for instance is decorated with innumerable plaster figures. The Northern tower is very plain and contains miniatures of the various kinds of gopurams and 'Vimanams'. The Eastern and Western towers are important. But the Eastern tower is strangely enough, neglected. There is a story explaining this. During Chokkanatha Naik the palace

officials levied an unauthorized tax on the temple servants and as a result, one of them committed suicide by way of protest by falling down from the top of the eastern tower.

The entrance of the shrine of goddess Meenakshi is guarded by two Dwara Balakas on either side with fearful and expressive eyes. The doors which are always kept open to admit pilgrims require careful study. On them will be found some of the most important dancing poses which witness the various types of classical Hindu dancing.

On the way, there is the golden Lily tank which is regarded as extremely sacred by all pious Hindus. A bath in its water is supposed to efface even the most deadly sin. According to Puranas Lord Indra bathed in the tank in order to release himself of the sin of Brahminicide.

The inner most Mandapam is Ardha-mandapam from which we can get a clear view of the image of goddess Meenakshi who is supposed to be the daughter of one Pandian King. The Northern entrance starts from the Northern tower. Near the Gopuram, there are five curious pillars known as the "Musical Pillars". Each of these is composed of 22 slender rods carved out of a single block of granite. The rods emit musical notes when tapped. The Southern tower which is the highest of all, rises to 152 ft. This Southern Gopura entrance will lead to the Golden Lily tank and the "Kilikudu Mandapam".

Next there is the hall of the Thousand Pillars. This hall of thousand pillars actually consists of only 985 pillars. The space for 15 pillars is occupied by a small shrine of Nataraja. On many of the pillars in the thousand pillared mandapam there are to be found a number of amorous figures known as "Mithunas". Some of them appear to be translation in stone of verses from that classical work on the Hindu Science of love.

Coming finally to the shrine of Lord Sundareswarar, there are the remains of old tree which suggests that the area occupied by the temple was once a forest of Kadamba trees. In fact, the puranas refer to Madurai as 'Kadambavana Kshetra'. The tree is surrounded by many Naga figures. This tree is, still, well preserved.

In the innermost shrine, we can see on the right side the beautiful figure of Siva in the form of Nataraja. The figure of Nataraja is plated with silver and is one of the finest specimens of its kind in South India.

We may appreciate the skill of our South Indian sculptors on seeing Siva's figures carved in various poses such as riding on his bull, seated on Kailas, dancing on an elephant, driving in his chariot and as Nataraja. The last mentioned figure attracts our attention because it is the dance of destruction. According to mythology Siva assumed this form in order to killl the three demons. Such is the culture associated with an ancient temple. Each pillar and every piece of art has a beauty of its own and a story to tell.

The Madurai Medical College Association

RULES AND BYE-LAWS

1. Name :—

The Association shall be called "The Mathurai Medical College Association."

2. Aims and Objects :—

To foster a spirit of Co-operation and brotherhood among the students of the College, and to promote their social, intellectual, moral and physical welfare by :-

(*a*) Arranging for lectures on subjects of general and scientific interest.

(*b*) Arranging for debates, social entertainments, games etc.

(*c*) Receiving the Graduates of the year at an "At Home"

(*d*) Bringing out the College Magazine.

3. Membership and Subscription :—

Membership of the Association is compulsory to all students of the College. An annual subscription of Rs. 6—0—0 is being collected at the commencement of each year along with the other special fees.

4. Life Members :—

The following can become life members on payment of the subscription noted against each category.

(1) Civil Surgeons attached to the College or Hospitals connected with the College Rs. 20—0—0

(2) Asst. Surgeons - do - „ 10—0—0

(3) Old Students of the College „ 10—0—0

The affairs of the Association shall be managed by a General Executive Committee for the Association. Special Committees for the purpose of (1) Publishing of Magazine (2) Entertainment, and (3) other special activities will be formed separately.

The General Executive Committee shall consist of :-

1. President (Ex-Officio)
   — Principal.
2. Vice-President & Treasurer
   — Staff Member.
3. Students Secretaries
   — 1. General
   — from the clinical classes.
   2. Assistant
   — from the pre-clinical classes.
4. Class Representatives
   — One from each class.
   (i.e., I M. B., B. S.,—1
   II M. B., B. S.,—1
   Final M. B., B. S.,—1)
5. Lady Students' Representative.
6. Day Scholar's Representative.

The Magazine Committee shall consist of :—

1. President (Ex-Officio) — Principal
2. Staff Editor
3. Editorial Secretary (Students)
4. Editorial Committee Members (not less than one member from each class subject to a maximum of five student representatives.)

The Staff Editor will also be the Treasurer for the Magazine Committee.

For other special committees, refer powers of the committees.

5. Elections of Office Bearers :—

Student Office bearers will be elected every year within a month after the admissions to the college are over. The change in office will take effect one week after all elections are over. The staff office bearers will be nominated by the Principal with their consent.

Interim vacancies in the committee shall be filled at the discretion of the President.

No act done by the Committee shall be deemed invalid by reason of any vacancies existing in the Committee, unless the number of such vacancies is 1/3 or more of the original number.

6. Committee Meetings :—

The Committee shall meet once a month or oftener if occasions arise.

Quorum :- The quorum shall be five for the General Executive Committee and 3/4 of the strength for the other special committees.

7. Procedure in convening extraordinary meetings :—

All extraordinary meetings have to be approved of by the President before they are convened. They shall be convened under the following circumstances :—

1. When the President deems it necessary to call for an extraordinary meeting for any reason satisfactory to him.
2. On the receipt of a written requisition by the General Secretary from not less than 60% of the members provided however that the President is satisfied about the reasons for the same.

8. Powers of the Committees :—

The Executive Committee shall have the power to make such bye-laws as it may deem necessary from time to time for the management of the affairs of the Association provided they are not inconsistent with the spirit of the Association, such bye-laws are however to be brought up for ratification at the next General Body Meeting. They will be in force temporarily with the consent of the President until the General Body vetoes or ratifies it.

The Executive Committee may appoint a Sub-Committee from among themselves or a special Committee from the members of the Association for transacting any particular business and may — delegate any of its powers to such committees.

9. The working of the Association :-

(i) The General Executive Committee shall have control over all the affairs of the Association including the supervision of the policy of the Magazine, but the details of the latter shall be worked out by the Magazine Committee.

(ii) The Secretary of the Association shall be responsible for arranging the details of the social gatherings — includ-

ing the Graduates' Reception, and the periodical lectures ; and for the maintenance of the books of the Association. Each sub-committee and the general executive committee will maintain a minutes book in which will be entered all the resolutions of the committees, the resolutions coming into force after ratification by the President.

The Editorial Secretary shall be responsible for the regular publication of the Magazine and for the proper maintenance of the registers concerning the Magazine.

10. FINANCES :—

This shall come under two heads :
(i) Funds of the Association (ii) Funds of the Magazine.

(i) *Funds of the Association* :— These shall consist of (*a*) subscriptions paid by the students at the commencement of the year ; (*b*) Donations from Professors, Assistant Professors and old boys ; (*c*) Special subscriptions raised from students on special occasions, if any. The General Executive Committee shall have control over the Finance, the Treasurer being authorised to operate on the account after prior sanction of the President and being responsible for the Executive Committee once in three months and be audited at the end of each year by an independent auditor appointed by the committee. The auditor's certificate with his remarks shall be appended to the Balance Sheet in the Annual Report. The funds of the Association shall be deposited with the Post Office Savings Bank or any other recognised Banking institution in the name of the Principal (Ex-Officio President separate from the Magazine Fund).

(ii) *The Magazine Funds* :—These consist of (*a*) a compulsory subscription of Rs. 2/- per annum raised from the students of the college as part of their association fees of Rs. 6. (*b*) Subscriptions from other students either of this college or other institutions, (*c*) subscriptions and donations from others, and (*d*) income from advertisements. The Treasurer of the Magazine Committee shall, with the aid of the Editorial Secretary maintain a register of the names of subscribers, be responsible for all receipts, and maintain an accurate account of the expenditure, with all the vouchers and counterfoils. The Treasurer will operate the funds under the direction of the President.

The accounts shall be passed by the Magazine Committee once in three months and shall be audited at the end of each year by an auditor appointed by it. The auditor's certificate with the remarks shall be appended to the annual report.

The receipt for the Magazine funds shall be credited to the account of the Magazine fund and be deposited wth the Post Office Savings Bank or any other recognised Banking institution in the name of the Principal (Ex-Officio President), as in the case of association funds.

11. THE MAGAZINE :—

(1) The Magazine shall be called The Madurai Medical College Magazine.

(2) (*a*) It shall be issued 2 times during the year to begin with or oftener if found necessary later.

(*b*) All articles of a controversial nature should be approved unanimously by the Committee before publication.

(*c*) Nothing should be printed without being approved by the President or Vice-President.

(3) *Subscription* : (*a*) Rs. 2/- from students of other institutions, —

House Surgeons, House Physicians and internees.

(b) Rs. 4/- from others, in each case excluding postage.

The nature and rates of Advertisements shall be left to the discretion of the Editor and the Magazine Committee.

12. MISCELLANEOUS :—

(1) A meeting of the General Body shall be held annually towards the end of February before the college closes, at which the annual report of the year shall be presented and passed.

(2) The quorum of a General Body Meeting shall be 30 per cent or 50 which ever is less.

(3) Ordinarily not less than three days notice shall be given for all meetings.

(4) Any amendment to the rules or any other matters concerning the association proposed by any member shall be considered at the business meeting on giving 15 days notice to the Executive Committee.

(5) These rules shall not be altered in any General Body Meeting, unless 40 per cent of the members are present.

Actor — A man who tries to be everything but himself.

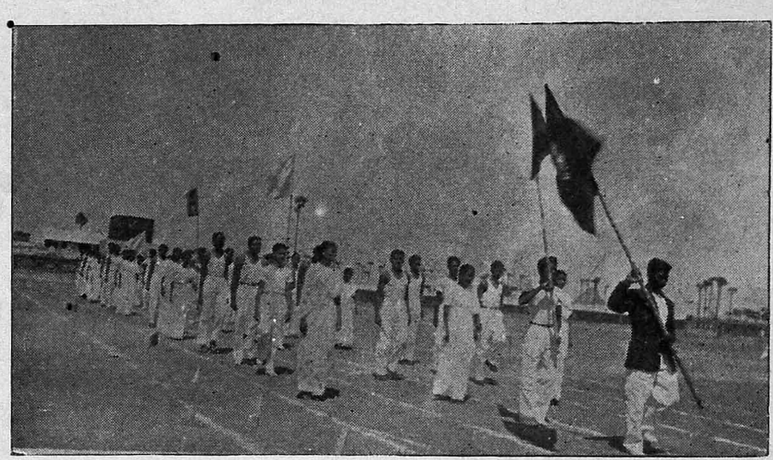
* * *

Average man — One who thinks he isn't.

* * *

Bank — An institution where you can borrow money if you can present sufficient evidence to show that you don't need it.

Sports Day Celebrations-1955-'56



The March - Past

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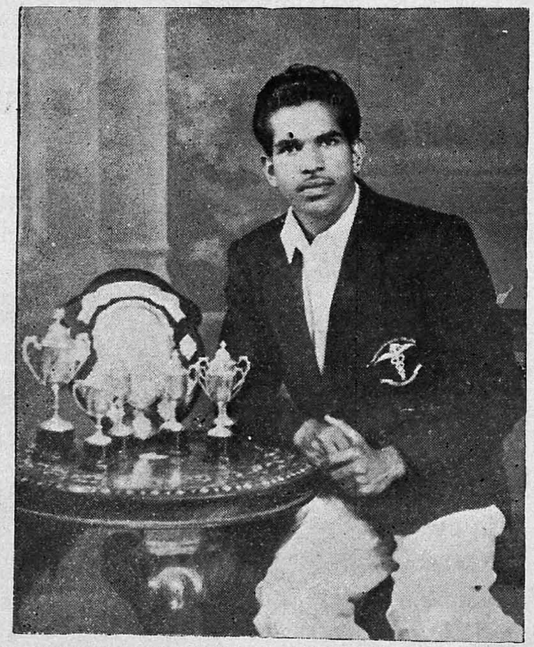

The Champion
MR K. C. MADAVAN

On The Victory Stand

Putting The Shot

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SPORTS DAY CELEBRATIONS (Contd.)

Winners in Discuss Throw

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The Lady Champion MISS V. RUKMANI

" On your mark, Get Set ...."

From Obstacles to Victory

(Photos by: MATHI & HAYOOM*)*

1 NOV 1956

Report of the Madurai Medical College

ATHLETIC ASSOCIATION 1955—'56

THE Athletic Association of the Madurai Medical College for the year 1955—'56 was formed under the Presidentship of Dr. M. D. Ananthachari, M.D., our Principal as soon as the I year students were admitted. Dr. M. N. Guruswami was requested to be the Vice-President and Mr. K. P. Mathew was elected as the Secretary. Mr. Sivasankara Menon, Miss Rukmani and Miss Shantha were nominated as the committee members of the Association.

Our achievements in the sports field though not very great are not small either, considering the fact that our college is only an infant institution having a strength of only 115 students. The enthusiasm of the students enabled us to participate in the Inter Collegiate matches of the Madras University, in Foot-Ball, Volley-Ball and Badminton. Though we lost in all the three games we did put up a good fight. We have been handicapped by the lack of funds, proper play grounds and other facilities. Very recently, the Government has kindly authorised the grounds to be prepared and the P.W.D. is doing its best to lay out all the grounds in a short time and provide us facilities for conducting most of the major games. With further facilities with regards to grounds and equipments, which we hope to get in the near future, I am sure that we will be able to put up a better show next year.

The Cricket Club of our College was inaugurated on the 30th of October 1955 by Dr. M. D. Anantachari, M.D., our Principal, and we had a friendly match between the students and staff members of the College and Hospital. Under the able captaincy of Dr. Ananthachari the staff defeated the students.

We played three practice matches against Arasaradi Cricket Club, Madura College and American College, Madurai with the very little practice available. We were able to draw only one match.

In the middle of January 1956, we started our intra-mural tournaments for men and women students. The following games were conducted for men, namely Football, Volleyball, Badminton, Tennikoit and Table Tennis. For Women, Badminton, Tennikoit, carrom and Table tennis. The competitions were held on house basis. Out of the 115 students more than half took part in the Intra-mural tournaments.

We are proud to announce that for the first time in the history of Collegiate sports in Madurai, we conducted an aquatic championship in the Municipal swimming pool. We had only three items in swimming namely free style, back stroke and relay. On the whole 30 competitors took part and it provided an exciting programme. We hope to include more events in future and we expect more competitors also, when we get our own swimming pool.

The second Annual Sports meet of our College was conducted on the 16th

February 1956. Dr. Ananthachari our Principal took the salute and declared the meet open. This time our sports meet was conducted on the inter house basis, namely Red House, Green House, Yellow House and Blue House. We got an entry of 80 competitors out of the 115 students which is a hopeful and healthy sign. The competitions were very keen and the performance of the students was above par. K. C. Madhavan of the Red House and Miss Rukmani of the Yellow House won the individual championships for men and women respectively. The elite of the city was present to witness the events. The most exciting item of the day was the Tug-of-war between the staff and the students in which the Staff captained by Dr. K. P. Anandan defeated the students. The sports meet came to an end with a gymkhana event for the visitors.

The meeting was presided over by Mr. P. T. Rajan, Bar-at-law, M.L.A., and the prizes were given away by Shrimathi Subhadra Ananthachari. The Annual report of the Athletic activities of the year was read by Mr. V. S. Austin (Physical Director) and the meeting came to an end with a vote thanks proposed by the Secretary.

At the end of this report I take this opportunity to thank our Principal Dr. Ananthachari and Dr. Guruswami our Vice-President for the keen interest which they have taken for the success of our College in sports. Finally I thank all the committee members and the students for their co-operation.

K. P. Mathew
Sports Secretary

The following are the results of Athletics :— intra-mural tournaments, Aquatics and

GAMES FOR MEN

FOOTBALL

Winners — Blue House :

1. K. M. Rajendren, Captain
2. G. Raman
3. F. J. Royen
4. A. Hayoom
5. Narayanaswamy K. P.
6. Nagasundaram S.
7. M. K. R. Kurup
8. Jayaraman K.
9. Mohamed Kasim M.
10. Raja D.
11. N. Ramachandra

VOLLEYBALL

Winners — Blue House :

1. G. Vijayarangan, Captain
2. Somasundaram R.
3. Abdul Hayoom
4. Nagasundaram S.
5. Mohamed Kasim M.
6. D. Raja

BADMINTON FIVES

Winners — Yellow House

1. Devarajan C.
2. Chandra Bose C.
3. Thangavelu R.
4. Pandian V.
5. Gandhimuthu V.

BADMINTON DOUBLES

Winners — Yellow House

R. Thangavelu and Chandra Bose C.

TENNIKOIT SINGLES

Winners — Yellow House

G. Chandragraham

TENNIKOIT DOUBLES

Winners — Yellow House

G. Chandragraham & Sundararaj A.

TABLE TENNIS SINGLES

Winners — Blue House

F. J. Rayen

TABLE TENNIS DOUBLES

Winners — Blue House

F. J. Rayen & K. M. Rajendren

GAMES FOR WOMEN

BADMINTON DOUBLES

Winners — Green House

Hemalatha K. & Vijayalakshmi N.

TENNIKOIT DOUBLES

Winners — Red House

Madona A. & Kamala K.

TENNIKOIT SINGLES

Winners — Red House

Madona Antony

CARROM DOUBLES

Winners — Red House

Madona A. & Sivakamavalli N. C.

TABLE TENNIS SINGLES

Winners — Blue House

Shantha S.

CHAMPIONSHIP WON BY BLUE HOUSE

AQUATICS

Free Style

Victor Jesudasan

K. Ramaswamy

Back Stroke

Vedanayakam B.

C. Dhanasekarapandian

RELAY

Mathew K. P.

Victor Jesudasan

Pandian V.

K. Kumaraswamy

CHAMPIONSHIP WON BY GREEN HOUSE

ATHLETICS

EVENTS FOR MEN

1500 METRES

K. C. Madhavan

M. P. S. Menon

800 METRES

K. C. Madhavan

Kandaswamy V.

400 METRES

K. C. Madhavan

Chandragraham G.

200 METRES

S. D. Clement

Soundararaj I.

100 METRES

A. Hammed Khan

Soundararaj I.

LONG JUMP

J. R. Samiah

K. C. Madhavan

HIGH JUMP
Raveendran C. S.
Vijayarangan G.

HOP-STEP AND JUMP
J. R. Samiah
Soundararaj I.

PUTTING THE SHOT
Kandaswamy V.
Pandian V.

DISCUS THROW
Kandaswamy V.
A. Hameed Khan

JAVELIN THROW
Mathew K. P.
S. Jamal

4 × 100 METRES RELAY

1. *Green House*

J. R. Samiah
Kumaraswamy K.
Veerabhadran S.
Mathew K. P.

2. *Red House*

K. C. Madhavan
M. P. S. Menon
S. D. Clement
Soundararaj I.

EVENTS FOR WOMEN

75 METRES
Madona Antony
Rukmani V.

SKIPPING RACE
Govindammal V.
Lalitha M.

OBSTACLE RACE
Shantha S.
Jayalakshmi R.

PUTTING THE SHOT
Sangeetham V.
Sivagamy P.

DISCUS THROW
Rukmani V.
Kamala K.

JAVELIN THROW
Sivagamy P.
Rukmani V.

THREE LEGGED RACE
Shantha S. & Lalitha M.
Kamala K. & Madona A.

RED HOUSE AND GREEN HOUSE TIED FOR THE CHAMPIONSHIP

1500 METRES (Open to all)
1. Subrahmaniam
2. Santhanam

EVENT FOR CLERICAL STAFF
1. A. M. Sivanadian
2. P. M. Guruswamy

ATTENDER'S RACE
1. Ramaswamy
2. Rathnam

LAST GRADE STAFF RACE
1. K. Raman
2. Muthu

CHILDREN'S RACE
1. Anand Kumar
2. Sridhar
3. Vijayakumar

GYMKHANA EVENT
1. Dr. Rajasekheran & Dr. Ramabai Devadoss
2. Mr. Krishna Iyer & Dr. Mrs. Sivaraman

FANCY DRESS COMPETITION
1. Gandhimuthu V.
2. S. Rajendren

15 NOV 1956

Hostel Notes

The strength of the Men's hostel on 31—7—'55 was 33. Fifty-one I.-M.B.B.S. students were admitted on 1—8—'55. The average strength of the men's hostel was 85. Ten students were in residence in the Ladies' hostel.

The following office bearers were elected for the year '55 - '56 :—

Mr. Babu Bryant
General Secretary.

Mr. Jamal
Mess Secretary (Non-Veg.)

Mr. Sankaranarayanan
Mess Secretary (Veg.)

Mr. Soundararajan
Secretary for Reading Room.

Mr. Chandrabose
Secretary for Games.

Miss Hemalatha
Lady Representative.

MESS :

It was possible to divide the mess into Vegetarian and Non-Vegetarian from September 1955 onwards. The average daily cost of mess ranged from Rs. 1—6—0 to 1—8—0. Because of their small number, the Ladies' Hostel is being supplied with food from the Men's Hostel Mess.

RECREATION :

It was possible to purchase a Ping Pong Table for the Men's Hostel at a cost of Rs. 346—9—0 from subscription raised from the Hostelers themselves during the course of these two years.

VISITORS :

The Hon. Sri. A. B. Shetty, Minister for Public Health as well as Dr. and Mrs. P. V. Cherian were the distinguished visitors to the Hostel during the year.

Report of the Madurai Medical College

STUDENTS' ASSOCIATION, 1955 — 1956.

THE Association could not be constituted before January, 1956, as it was found necessary to have a proper constitution framed. The expert Committee entrusted with this task had to face an unavoidable delay in evolving the constitution.

The draft constitution was adopted by the General Body in its meeting held on the 21st October, 1955, after a clause by clause discussion in which several members took an active part.

Though we cannot set a claim for big achievements, yet it is a sincere record of work that we carried out during our short term of office.

Under the new constitution the following office-bearers were elected :

General Secretary..Mr. M. Y. Sankaran

Assistant Secretary..Mr. N. Ramachandra

Lady Representative..Miss Madona Antony

II M.B.B.S. Representative.. Mr. C. Dhanasekarapandian

I M.B.B.S. Representative.. Mr. Abdul Hamid Khan

Dr. K. P. Anandan, Our Professor of Physiology cum Warden, kindly consented to be the Vice-President of the Association when the members of the Executive Committee approached him. We would be ever grateful to him for the sacrifice he made in accepting the post. His guidance and help in running the activities of the Association were indeed invaluable.

On 21st January, 1956, the Honourable Dr. P. V. Cherian, Chairman, Madras Legislative Council inaugurated the Association. Dr. M. D. Ananthachari, Our Principal and President presided over the meeting. Dr. Cherian began his address by congratulating us for the distinction we obtained in the recent first M.B.B.S. examination. During his address, he gave us some interesting and humorous anecdotes of his life as a medical student.

Dr. Cherian reminded us that there is no short cut to success, success in life as doctor could be achieved only through sheer hard work and more hard work he cited his own example.

The address was very stimulating and all of us left the hall with a determination to succeed in life through hard work. A vote of thanks was proposed by the secretary.

Under the auspices of the Association a meeting was held on 21st February, 1956. Dr. V. S. Ramaswami, M.B.B.S., B.S.SC., M.P.H. (HOPKINS), Our Professor of Social and Preventive Medicine, delivered a talk on "Health and Welfare in the U.S.A.".

After giving an interesting comparison of the life of Medical Students in India and in U.S.A., he went on to say that in the U.S.A., radio and television are being extensively employed in the propagation of their Health Programmes.

He also emphasised the ignorance of the average American about India and finally traced the usefulness of the various welfare organisations in America.

Dr. M. D. Ananthachari, the president, in his concluding remarks gave an interesting comparison about the resources available in India and in America and believed that we, as a nation, are in no way inferior to the Americans. After a vote of thanks by the Asst. Secretary the meeting concluded.

This was our last meeting for this term. The office-bearers express their thanks to the Principal and the Assistant Principal for all the help rendered to make the Association's activities a success.

Our thanks are due to the members of the Staff and students who have always and rightly cherished the Association as their own.

The Executive Committee is fully aware that the achievements during the year of report do not give it much credit. The month of February was busy with the celebration of the College Annual Sports and the Hostel Day. With the impending examination in April nothing further could be done in March.

We hope that the succeeding Executive Committee will be able to achieve a very substantial record. We wish the future Executive Committee all success.

N. Ramachandra
Asst. Secretary.

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Overheard in a dentist's office :
"Open your mouth, darling," came a pleading voice, "so the doctor can get his finger out."

* * *

Men marry because they are tired, women because they are curious, Both are disappointed. — Oscar Wilde.

* * *

Every part of the body is dependent on the whole.

* * *

Memory can be spoken as mental photography.

* * *

That which can be foreseen can be prevented.

We bid them farewell:

1. Dr. Sarah J. Souri, M.B.B.S., D.G.O., Ph.D. (GLASGOW).
Principal and Professor of Anatomy.

2. Dr. David Rajaratnam, M.B.B.S.
Tutor in Physiology.

3. Dr. V. Srinivasamurthy, M.B.B.S.
Tutor in Anatomy.

4. Dr. A. Venkata Subba Reddy, M.B.B.S.
Demonstrator in Anatomy.

5. Dr. K. Venkatakrishna Reddy, M.B.B.S.
Demonstrator in Anatomy.

6. Dr. K. M. Kalappa, M.B.B.S.
Demonstrator in Anatomy.

7. Dr. Khammarunnisa, M.B.B.S.
Demonstrator in Physiology.

8. Dr. S. Arumugam, M.B.B.S.
Demonstrator in Physiology.

9. Dr. K. C. Natarajan, M.B.B.S.
Demonstrator in Bio-chemistry.

10. Dr. N. S. Sundaram, M.B.B.S.
Demonstrator in Bio-chemistry.

11. Dr. P. Ramakrishnan, M.B.B.S.
Demonstrator in Bio-chemistry.

12. Dr. G. M. Anwar Hussain, M.B.B.S.
Demonstrator in Physiology.

13. Dr. K. Rajagopal, B.A., M.B.B.S.
Demonstrator in Anatomy.

14. Sri R. Subramaniam, M.A.
Asst. Lecturer in Chemistry.

15. Dr. G. Velayudam, M.B.B.S.
Demonstrator in Physiology.

We Welcome

15 NOV 1956

1. Dr. M. D. Ananthachari, M.D.
   Principal and Professor of Medicine.

2. Dr. C. K. Padmanabha Menon, M.S., F.R.C.S., (ENG.)
   Professor of Surgery.
3. Dr. N. G. Pandalai, M.D., D.T.M., F.R.C.P.
   Professor of Bacteriology.
4. Dr. S. P. Vedachalam, M.D.
   Lecturer in Pathology.

5. Dr. V. S. Ramaswami, M.B.B.S., B.S.SC., M.P.H., (HOPKINS).
   Professor of Social and Preventive Medicine.

6. Dr. M. N. Guruswami, B.A., M.B.B.S., M.S., (MICHIGAN).
   Professor of Pharmacology.

7. Dr. T. S. Chelvakumaran, B.A., M.B.B.S., M.S., (MICHIGAN).
   Professor of Anatomy.
8. Dr. K. T. Harilal, B.SC., M.B.B.S.
   Tutor in Pathology.
9. Dr. K. Sivaraman, B.SC., M.B.B.S.
   Tutor in Bacteriology.
10. Dr. Meenakshi Sivaraman, M.B.B.S.
    Tutor in Pharmacology.

11. Dr. M. I. Varkki, M.B.B.S., D.G.O., B.S.SC.; D.P.H.; (LONDON).
    Asst. Professor of Social and Preventive Medicine.

12. Dr. Lalitha Kameswaran, M.B.B.S.
    Tutor in Pharmacology.
13. Dr. T. C. Nagarajan, M.B.B.S.
    Surgical Registrar and Tutor in Surgery.

14. Dr. E. Sankaralingam, M.B.B.S,
    Tutor in Surgery.
15. Dr. K. Alagappan, M.B.B.S.
    Medical Registrar and Tutor in Medicine.

16. Dr. K. Jagannathan, M.B.B.S., D.T.M.
    Tutor in Medicine.
17. Dr. V. Kalyanasundaram, M.B.B.S., L.O.
    Tutor in Physiology.
18. Sri A Alagiriswamy, B.A.
    Senior Entomologist.
19. Dr. K. Arumugam, M.B.B.S.
    Tutor in Pathology.

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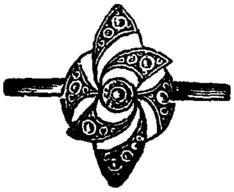

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